

# Antic<sup>®</sup>

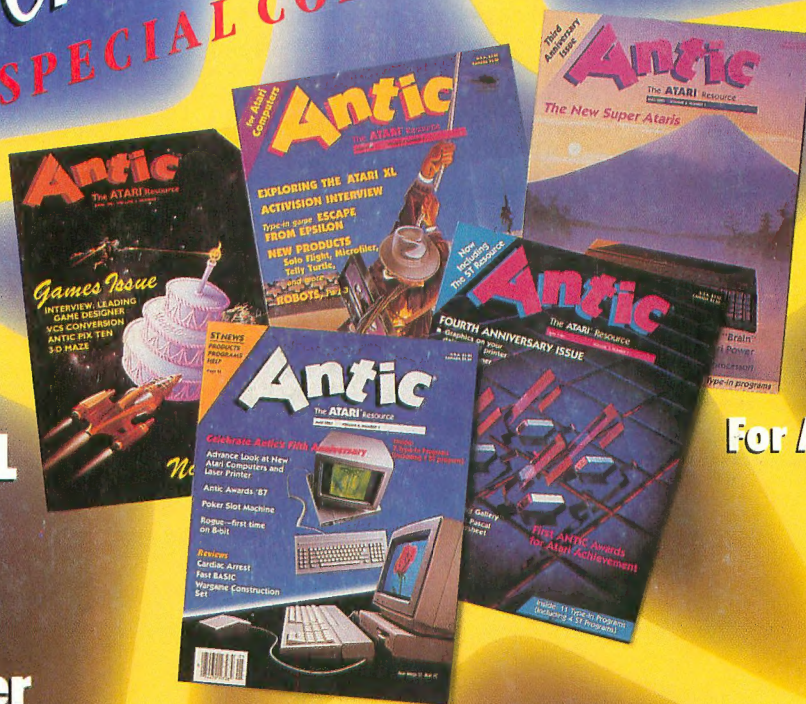
The **ATARI**<sup>®</sup> Resource

MAY 1988

VOLUME 7, NUMBER 1

## Sixth Anniversary

**SPECIAL COLLECTOR'S ISSUE**



**3rd Annual  
Antic Awards  
For Atari Achievement**

**5 EXCEPTIONAL  
Type-ins  
Featuring (8-bit):  
Printer Spooler**

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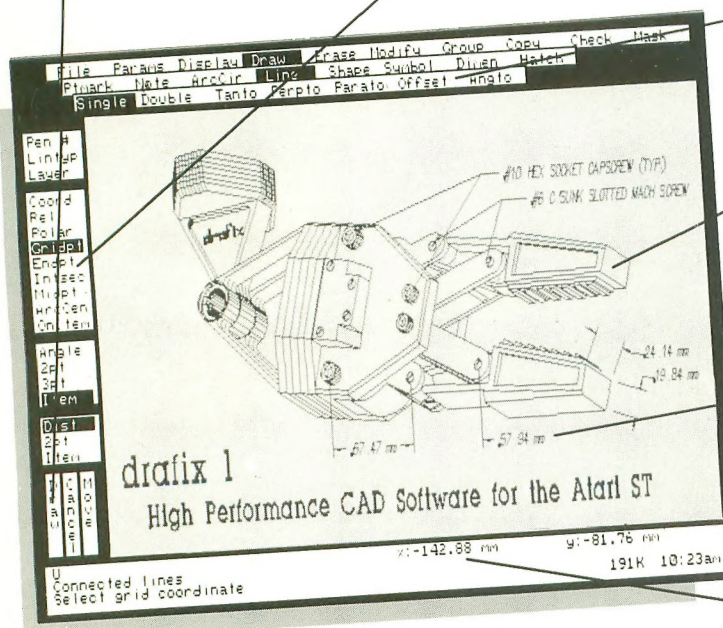
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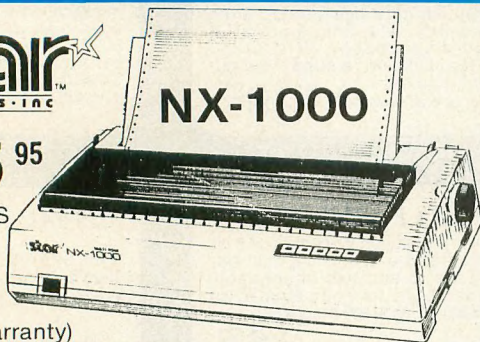
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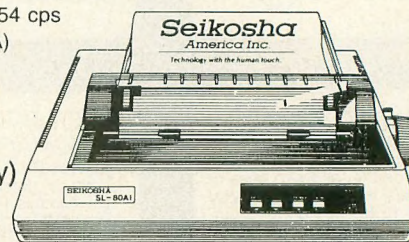
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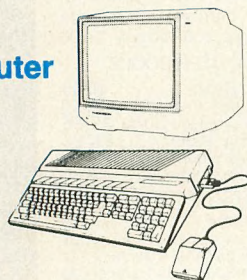
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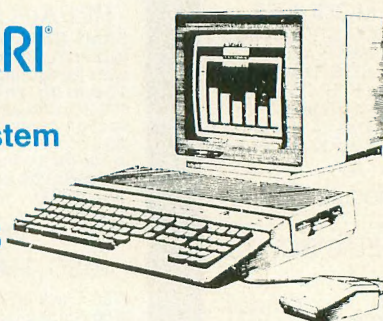
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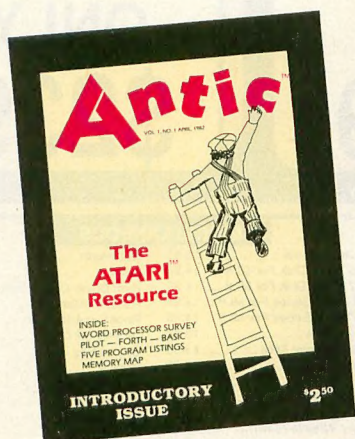


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## I/O Board

### ICD/OSS

*As this **Antic** issue went to press, it was announced that ICD is taking over the complete OSS product line, including MAC/65, ACTION!, BASIC XE and ST Personal Pascal. For ordering and support, contact ICD/OSS at 1220 Rock Street, Rockford, IL 61101. (815) 968-2228.*

### TRIVIAL PURSUIT

Is there a program for the ST that lets you create questions with multiple selection of answers and give you a score at the end of the test, along with a printout of questions and answers? Also, where can I obtain a new ST mouse?

Larry Doss  
Chicago, IL

*Pursuit of the Graf STrivial (**Antic**, September 1987), written in GFA BASIC, does exactly that. If you don't have GFA or don't want to type in the listing, you can order the disk from Antic's Disk Desk.*

*Also, you should be able to purchase a new mouse for your ST from Atari Corp. at 1196 Borregas Avenue, Sunnyvale, CA 94086. (408) 745-2000.—ANTIC ED*

### I/O OR 1/0?

I'm a retired data processing manager and I never have let my programmers use the letters I, O, S or Z as variable names. I'm sure you can see the similarities between those letters and 1, 0, 5 and 2. I even steer clear of Q, U and V—Q looks like 0, and U and V look alike.

Avoiding those variable names would make type-in listings much more likely to work the first time.

Jerome Fraenkel  
Franklin Square, NY

### LIGHTSPEED RELOCATES

Here's the new address for the makers of Lightspeed C (New Products, December 1987). Clearstar Softechnologies (Division of Omegasoft), P.O. Box 140, Harrells, NC 28444. (919) 532-2359.

### XMM801 SOFTWARE

Regarding William Tilley's XMM801 Woes letter (February 1988), Starfleet Software has three XMM801 utility disks available for \$10 each. These utilities enable the Atari XMM801 to print screen dumps in five different sizes, print near letter quality, mix NLQ text with graphics on the same page, plus much more. Starfleet is at 1037 W. Leafland Avenue, Decatur IL, 62522. (217) 423-6820.

Terry Ortman  
Starfleet Software

### REAL SIERPINSKI AUTHOR

The Sierpinski Curves program reprinted from Page 6 Magazine in your February 1988 issue was originally written by me for the July 1984 Creative Computing. The programs are identical, right down to the variables and line numbers. I would appreciate a note in **Antic** that I am the author.

David Ahl  
Publisher,  
Atari Explorer

*Antic sincerely regrets this Transatlantic foulup. Page 6 credits for this short fractals program in their May/June 1987 issue simply stated that the "nice little demo... was sent in some time ago by Alan Sharpe on behalf of the Brighton Users Group."—ANTIC ED*

### SCHEDULE SAVER

I work for a leading child mental health center and one of our biggest problems is room-scheduling for appointments. We decided to use an Atari 130XE to make this easier. Because the scheduling office is a high-turnover, low-computer-literacy place, one of the significant features of our system, written in Advan BASIC, is that it's user-friendly. No training time is required.

I should point out that we selected Advan BASIC because of a good review in **Antic** (June 1987). It's an excellent product, and customer support has been excellent, too.

Katherine Wilson  
Brookline, MA



## INDUS AID

Please tell Victor Decarlo Jr. (Indus Compatibility, February 1987) to disconnect and reconnect the I/O cables between his disk drive and computer several times to improve the contacts and make sure they're firmly in place. This often-neglected precaution fixed my own problem with Flight Simulator II on my Indus drive after a couple of infuriating months of troubleshooting.

Richard Barkley  
Eugene, OR

## ALL I NEED

My little Atari 800 has run a large real estate company in Daly City, California, for over two years, fulfilling all data processing needs—reports, word processing, mailing labels, etc. The original investment, excluding the printer, cost about \$600. It's a sad situation for anyone to spend more than \$400 (plus the printer cost) to get into computing. Atari is the one computer that more than fulfills this need.

John Mohr  
Daly City, CA

## CAN'T HOOK UP

Your article *Laptop-to-Atari Connection* influenced me to buy a Tandy 200 laptop to use at work. My intention was to transfer files to my Atari for storage. However, I haven't been able to get them to communicate. I've tried every combination of modems, cables, hookups and software I could think of. Can you help?

Michael Lettini  
Mercer Island, WA

*Go into the built-in communications program on your Tandy and make sure it's set up (parity, baud rate, stop bit, etc.) the same way as the terminal program you're using on the Atari. And make sure your Atari program can transfer ASCII files—if it can transfer only ATASCII files, you're using the wrong program.*—ANTIC ED

continued on next page

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**SPRINGBOARD**



## PRACTICAL PATCH

*Bibliography Master* (Antic, November 1987) is a terrific program—a victory over those pedantic little rules that drive most of us crazy.

However, the program prints a line space between each printed line, and that presents a problem. Most form books and pedagogues require that each entry in a bibliography be single-spaced and that a blank line be used only (if at all) to separate the individual references.

The program can be changed easily to double-space only between reference sources (which looks nice) by inserting or revising the following lines:

```
681 DBSP=F0
```

```
691 IF DBSP=F1
```

```
THEN ? #F3:LIN=LIN+F1
```

```
1040 ? #F3:LIN=LIN+F1:DBSP=F1
```

If you just want single-spaced printouts, forget about lines 681 and 691 and revise line 1040 as follows:

1040 ? #F3:LIN=LIN+F1

Now, if someone would convert *Bibliography Master* into a program to format end notes, we'd have most of the maddening technicalities of writing academic papers just about licked.

Dwight Collin  
Pittsford, NY

## FAMILY ANTIC

Thanks for the programs in the January 1988 issue of *Antic*. My kids enjoyed *Ras-silon's Triple-Header* and have been printing *BASIC Biorhythms* charts for their schoolmates. *Mighty Mailer* and *Antic SuperCopy* are both good programs, but I'd like to send special thanks to Rich Moore for the *SSI Joystick Commander*. (You can add Kampfgruppe to the list of games the "daring method" works with.)

Robert Smith  
Reedsport, OR

## WANTS ISSUE #1

The only issue of *Antic* that I don't have is issue #1. How can I get a copy?

Evan Engelkes  
Council Bluffs, IA

*Sounds like a job for Antic Classified Ads.*—ANTIC ED

## DOUBLE DEUTSCH

My brother bought a 1040STM in Germany and was told that he couldn't read the single-sided disks from my 520ST because of the new double-sided drives. This isn't right, is it? Also, is there a program for the ST that would help me learn French?

Gerd Knaak  
Spring, TX

*Double-sided drives can read single- or double-sided disks. If your brother wants*



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## I/O Board

to send a disk to you, he should format it as single-sided.

The Linkword Languages from Artworx Software (reviewed in *Antic*, October 1987) include a French edition and are available for the ST.—ANTIC ED

## DESIGNER MAILER

Thanks for the fine programs in your magazine. We especially like the *Designer Label* program (*Antic*, April 1987). We're using it *without* any mailer program: we compose our list on a word processor and save it to disk. Then we RUN Designer Labels and LOAD our text file. The results are perfect. The only thing to keep in mind is to press [RETURN] after each line and another [RETURN] after each address—exactly as specified when using Mighty Mailer (*Antic*, September 1987).

Charles and  
David Smith  
Girard, OH

## DISK DESK PRAISE

I am very pleased with the Antic Disk Desk. I called in an order late one Wednesday night and received my merchandise in Saturday's mail. I might also add that your new disk price and bonus programs have tempted me to renew my subscription, but with disks.

Gordon Toomey  
Rancho Palos Verdes, CA

*Antic welcomes your feedback, but we regret that the large volume of mail makes it impossible for the Editors to reply to everyone. Although we do respond to as much reader correspondence as time permits, our highest priority must be to publish I/O answers to questions that are meaningful to a substantial number of readers.*

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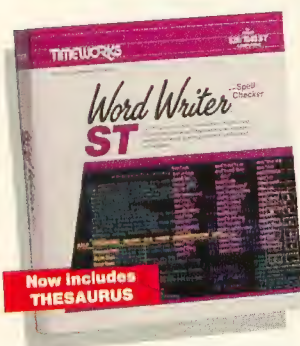
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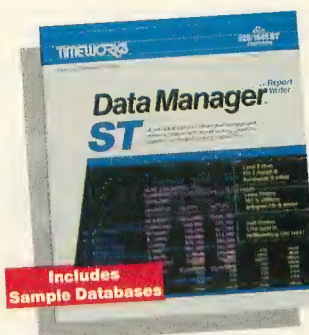
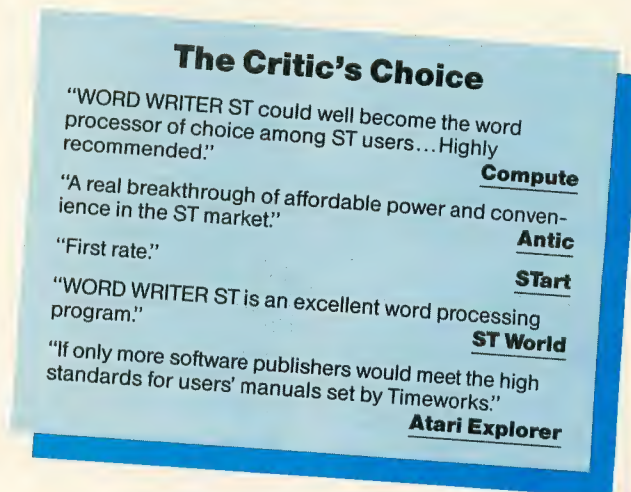
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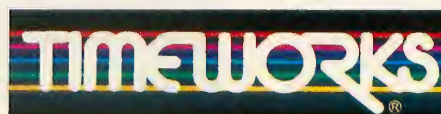
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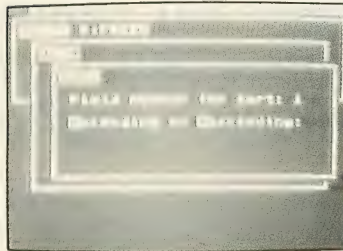
*Database deluxe in Turbo BASIC*

This month's Super Disk Bonus is Antic Data-X, a full-featured database program that rivals commercial software in power, versatility—and especially in ease of use. Windows automatically display all the information you'll need to operate Antic Data-X, so you don't need to learn complicated commands. The program works on Atari XL/XE computers with at least 64K memory and it also supports RAMdisks.

Antic Data-X makes it easier than ever to create, search and print out your own mailing lists, phone directories, household inventories, catalogs of your recordings, videotapes, software, magazines or books. Any kind of interactive data file will be at your command.

Antic Data-X can handle files with as many as 300 characters per field, 20 fields per record and 1,000 records per file. Besides the add, delete and update functions usually found in database software, Antic Data-X also performs additional mathematical manipulations across fields.

Antic Data-X is written in



speedy compiled Turbo BASIC, but you don't need to own that programming language in order to use this month's Super Disk Bonus. The Antic technical staff experimented with a standard Atari BASIC type-in translation of Data-X, but it did not run fast enough to provide much advantage over our *Topshelf* type-in program (January 1988). However, in the pseudo machine language of compiled Turbo BASIC, Antic Data-X performs large-scale sorts lightning-fast—especially when used with a RAMdisk.

The author of Antic Data-X is Jeffrey Summers, the Rochester, NY physician who won a November 1987 Antic Practical Applications Prize for *Your Best Route*. Antic Data-X is so fast and user-friendly that it offers clear advantages over the earlier Super Disk Bo-

nus database which appeared in the August 1987 issue.

A complete 2,500-word manual on how to use Antic Data-X is contained on Side B of the May 1988 monthly disk. To read it or obtain a printout, select choice 5, HELP.BAS, from the Side B menu.

Your May 1988 Antic Disk—featuring Antic Data-X as well plus every type-in program from this issue—will be shipped to you within 24 hours after receiving your order. Just phone Toll-Free to the Antic Disk Desk at (800) 234-7001. The monthly disk is only \$5.95 (plus \$2 for shipping and handling) on your Visa or MasterCard. Or mail a \$5.95 check (plus \$2 shipping and handling) to Antic Disk Desk, 544 Second Street, San Francisco, CA 94107.

Programmers: Antic wants to see your most ambitious programs, even those too large or complex for printing as a type-in listing. High-quality programs in any language that has a runtime version are now eligible for consideration as a Super Disk Bonus. ■

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## Contest Rules

Count the total number of times the word "cyber" appears from cover to cover in the Antic Catalog (issue pictured on this page). Uppercase or lowercase, as part of another word, or separate, whenever the letters c-y-b-e-r appear in sequence, they count as one "cyber." Send your total count, along with your name, address, and phone number to: CYBER COUNT,

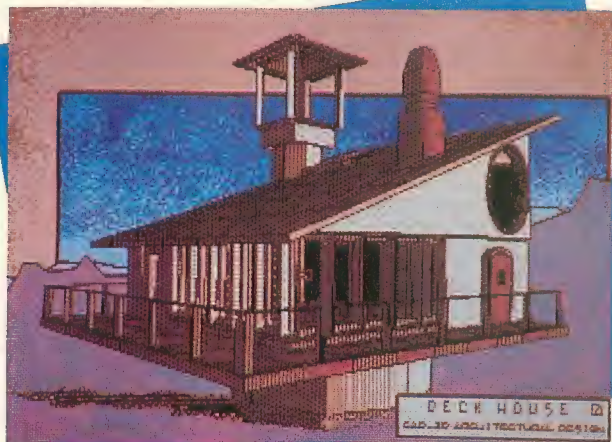
Antic Software, 544 Second Street, San Francisco, CA 94107. DEADLINE: April 30, 1988. ENTRY LIMITED TO ONE PER CUSTOMER. In case of ties, a drawing will be held to determine the winner. Contest void where prohibited.

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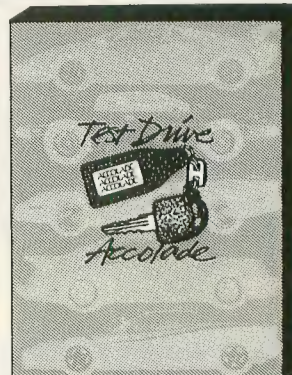
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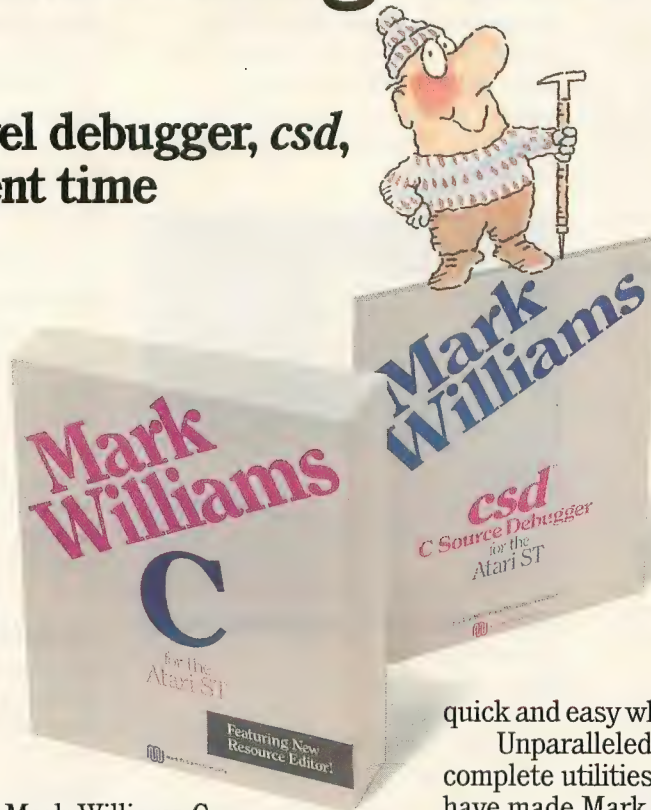
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—ANTIC ED



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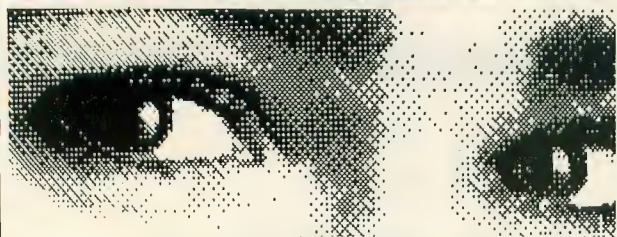
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## Feature Application

Type-In Software

By GLENN SMITH

# Antic Spooler

*Keep on computing while you print!*

**Antic Spooler is a short machine language printer buffer that allows you to continue using your computer for other tasks while printing lengthy program listings. The BASIC program which creates Antic Spooler works on all 8-bit Atari computers of any memory size, with disk drive.**

"Is your computer tired of waiting for your printer to finish?" You've seen ads for printer buffers (also called printer spoolers). These devices—which can be either hardware or software—temporarily store data sent to the printer by your computer program and send that data to the printer, one line at a time.

As your program sends more data to the printer, the buffer intercepts it and stores it until the first task has been completed. For many applications, printer buffers really do save time because the printer and the computer can work simultaneously.

Antic Spooler creates an 8K buffer in the memory of your 8-bit Atari. Text sent to the printer is intercepted by Antic Spooler, which returns control to your computer as soon as the characters have been stored in RAM. Antic Spooler then sends characters continuously from RAM to the printer while your main program keeps on running.

## ANTIC SPOOLER CHALLENGE

The MAC/65 source code for Antic Spooler, SPOOLER.M65, is 118 sectors long and can be found on this month's Antic Disk. Assembly language programmers should not find it hard to enhance Antic Spooler. This magazine would be interested in publishing the best patches or add-ons to Antic Spooler.

For example, you might want to enlarge the buffer to 16K or so, modify it to use the RAM under the operating system, or create a 64K buffer using the extended memory in the 130XE and upgraded XL computers.

As written, Antic Spooler is useful mainly for making printouts of your own program listings while you continue to compute. Maybe you could even find ways to make Antic Spooler work with some disk-based commercial word processing software. (As is, the spooler should already work with commercial cartridge software such as the original version of Atariwriter.)

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## GETTING STARTED

Since Antic Spooler is a machine language program and cannot be typed-in and SAVED, we'll use a simple BASIC "helper" program that will automatically recreate Antic Spooler and store it to a disk file.

Type in Listing 1, SPOOLMAK.BAS, check it with TYPO II and SAVE a copy before you RUN it. Listing 1 will create Antic Spooler, and store it to a disk file called SPOOLER.OBJ. Antic Disk users will find a copy of SPOOLER.OBJ on this month's disk.

Copy SPOOLER.OBJ to another disk and rename it as AUTORUN.SYS. Make sure this disk also has the DOS.SYS and DUPSYS files, too. Now reboot your Atari with this disk. The AUTORUN.SYS file will install the spooler into low memory. Your free memory will be reduced by about 8K.

Let's test the spooler. LOAD any BASIC program, type LIST "P:" and Antic Spooler will capture text and begin printing it. After the program has been LISTed, BASIC's "READY" prompt will appear.

## HOW IT WORKS

Multi-tasking? No, not really. Antic Spooler modifies the resident "P:" printer handler, specifically the PUT CHAR routine. Whenever you execute a statement that PRINTs to the printer (LPRINT, LIST "P:", PRINT #), the new P: handler will store text in the spooler and increment the character counter. Then every 1/60 of a second, during the Vertical Blank Interrupt, control passes to the VBI part of Antic Spooler.

The VBI routine first checks to see if the printer is busy. In this routine, PUT CHAR takes priority over printing, which means that the spooler would rather store characters in its buffer than print them.

When the printer is free, the priority flag is turned off (set to zero), and the spooler will try to print a character.

The priority flag is turned on by PUT CHAR whenever a character is stored in the buffer, waiting to be printed.

If the priority flag was off, the VBI routine checks the result of its last attempt to print a character. If there was some problem and that character was not printed, it is re-sent until the character is printed.

If, on the other hand, the character was printed successfully, Antic Spooler searches the buffer for the next character. If it finds one, Antic Spooler puts it into the resident print handler buffer and decrements the character counter.

When the resident buffer becomes full, it's printed using the standard SIO vector (the same vector normally used by your printer).

## WARNINGS & DON'TS

Since Antic Spooler sends characters to the printer through the SIO vector, it's not affected by OPEN and CLOSE statements, or by the LPRINT and LIST "P:" commands. This means it will work with software that never executes a CLOSE command, which is why it works with commercial cartridge software like the original version of AtariWriter.

*continued on page 26*

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# Product Reviews

## *Phantasie II, Guild of Thieves*



### PHANTASIE II

SSI has released an exciting 8-bit Atari version of **Phantasie II**, the second entry in their premier adventure series. And while 8-bit owners will miss out on the ST version's brilliant graphics, at least now all Atarians can go another round with the evil Nikademus.

Phantasie lovers can rejoice at the prospect of sending up to six adventurers to the island of Ferronrah, over which the Dark Lord Nikademus has cast a cloud of evil. Veterans can transfer their old characters, although by doing so they forfeit most of their accumulated wealth and power. Newcomers (and those who have lost faith in their current warriors) create characters by selecting race and occupation and then watching as the computer randomly generates values for attributes such as intelligence, strength and wisdom.

As you search the island for an enchanted orb, your party will encounter a variety of creatures, most of which will have to be dispatched by force. Castles and dungeons hold treasures and dangers beyond your wildest dreams, and most players can count on hours of play before this game is completed.

As you grow in power you will wield stronger and stronger spells, defeating enemies of ever-increasing strength. But Phantasie II is a game of

brains as well as brawn, so success also depends on the intelligence of you and your character.

You can use either the keyboard or the joystick to keep the action moving, using ST-like menus. The graphic displays are well designed and help keep even the newcomer right on top of the action. A generous manual completely and concisely explains the game, adding plenty of tables and charts for quick and easy reference. All in all, Phantasie II is a fine addition to anyone's software library and a must for all adventurers. Its practically transparent user interface allows you to concentrate on playing the game—on living the adventure—and isn't that really what it's all about?—STEVE PANAK

\$39.95, 48K disk. Strategic Simulations Inc., 1046 N. Rengstorff Avenue, Mountain View, CA 94043. (415) 964-1353.

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### GUILD OF THIEVES

The 8-bit Atari version of **Guild of Thieves**, sequel to the popular game *The Pawn*, is a sophisticated graphic adventure that had me fully involved.

The Pawn transported you to the land of Kerovnia. You return to Kerovnia in *The Guild of Thieves* as an apprentice to a master thief. You are told to steal all the treasures in the area while being watched and judged closely.

The Pawn and *Guild of Thieves* are not directly connected, except that they are both set in Kerovnia and share small details. The monetary system is based on the ferg and Farthington's Ale is the local drink. As in *The Pawn*, commands are entered in full sentences. These include phrases such



as "Go north west and take the key." Multiple commands make things much easier for the prospective thief. To return to a location you've been through, just type in its name.

The game can be saved at different points and reloaded. This you want. A helpful feature of the command editor is the ability to take back a move by pressing the escape key. The graphics can be scrolled up or down by pressing [SELECT] or [START].

The outstanding graphics of *The Pawn* are matched by those in *Guild of Thieves*. High-resolution pictures transport you into a medieval world of thieves, castles and treasure. The only complaint I have about the Atari XE/XL version is that most of the detailed graphics had only shades of one or two colors.

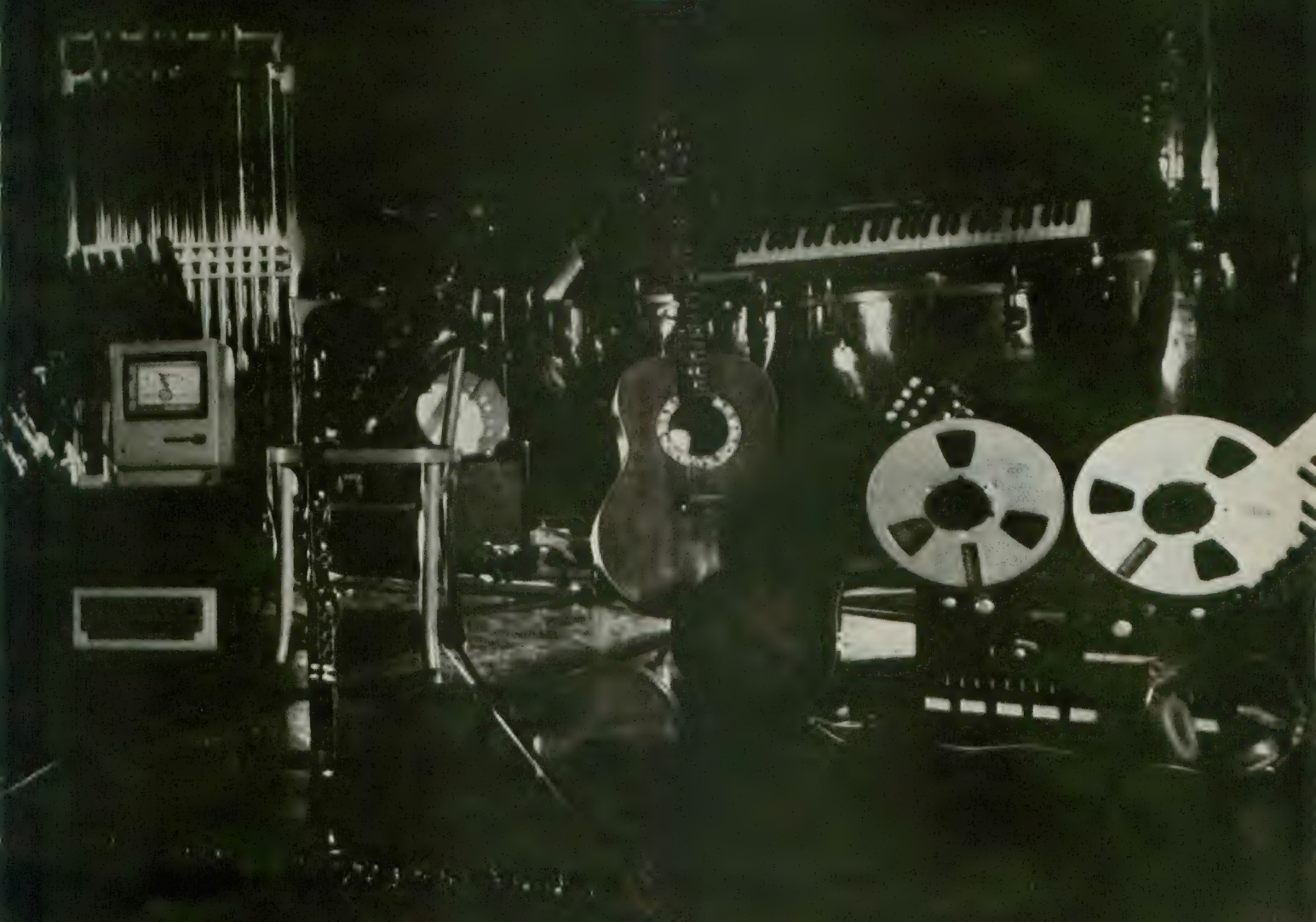
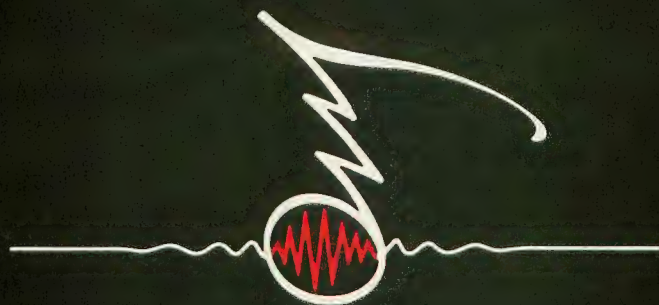
The annoying copy protection scheme makes you enter a specific word from "What Burglar?" when reloading a saved game. The game also accesses the disk frequently, especially for the graphics. Fortunately you can speed things up by turning the graphics off. And if you liked *The Pawn*, you are sure to love this superior sequel.—JOHN MANOR ■

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## ANTIC SPOOLER

continued from page 23

To conserve memory for your main program, Antic Spooler relocates itself to the lowest memory location possible. The program pushes your Atari to its limit. The computer wasn't designed to do two things at once, so programs won't always be as fast as you'd expect. There may even be moments when the screen freezes briefly while Antic Spooler sends text to the printer or frees buffer space for incoming characters. And since printing affects the sound registers, programs that use sound will be affected.

You should also keep the following cautions in mind: If you try to LOAD a large BASIC program over the Antic Spooler or its buffer, your computer may lock up. Antic has successfully tested Antic Spooler with BASIC programs as large as the 94-sector *WYSIWYG Cassette Jackets* (November 1987).

You can't turn BASIC on or off while Antic Spooler is printing, but you *can* do so afterwards.

Finally, you shouldn't use the DOS command because the DUPSYS file might load right over Antic Spooler. If you enter DOS, Antic Spooler will abort its printing, reset all modified memory pointers and exit to DOS. When you return to BASIC, Antic Spooler will be unavailable. ■

*Glenn Smith is a Mesa College senior at Grand Junction, Colorado and has been programming for five years. This is his first publication in Antic.*

FOR MORE ARTICLES LIKE THIS, CIRCLE 196 ON READER SERVICE CARD.

Listing on page 69

## Online

By MATTHEW RATCLIFF

# Choosing Your Modem

*Strategy for online beginners*

Your first significant investment before going online with your Atari will be a modem, the small box of electronic circuitry that actually interconnects your computer and the phone system.

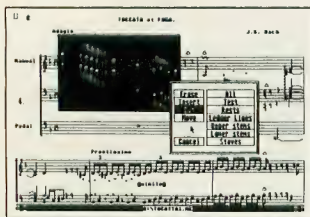
You don't necessarily need to buy modem software when first getting started online. Usually you can acquire a good public domain terminal (or modem) program such as AMODEM 7.2 for the 8-bit Atari. And ST owners can start by using the VT-52 terminal emulator desk accessory that comes with their computers. Then after getting a bit of online experience, you'll have a better idea of what features you want to pay for in commercial modem software.

## ATARI'S OWN MODEMS

Over the years, Atari Corp. has produced a series of widely used 300-baud modems that plug directly into the 8-bit Atari's non-standard SIO serial bus. You can still find either new or used XM301s, some older 1030 models, or



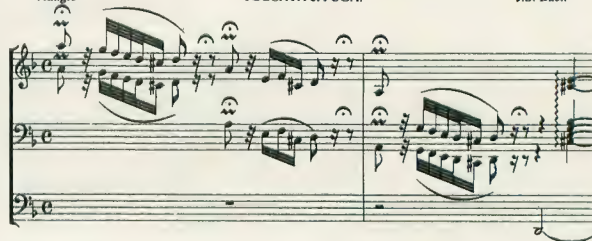
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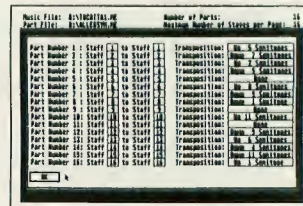
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The Copyist™ requires an Atari 520 or 1040 ST computer with color or monochrome monitors. Supports Epson, HP Laserjet + and Postscript printers. Now supports standard MIDI files. Completely new documentation. Three levels of the Copyist now available. Level III comes bundled with Adobe Sonata™ fonts. Above screens and output from ST version. Amiga version coming soon.



# PATRIOT 2400E MODEM



even a few ancient 835s. These are all "direct connect" modems, which means they plug directly into a modular phone jack.

Most standard modems require the computer to have an RS-232 serial interface. The Atari ST models have this RS-232 port built in. To connect RS-232 peripherals to your 8-bit Atari you will need the ICD P:R: Connection or the discontinued Atari 850 interface.

The Atari XM301 modem comes with good communications software, complete with XMODEM file transfer protocol. Keith Ledbetter, one of the best-known names among Atari modem enthusiasts, has written a 1030/XM301 version of his Express! terminal software. His latest revision is 3.0, available free from most bulletin boards. It is "share-ware" which you download, use, and send the author some money if you like his efforts.

AMODEM Plus, version 7.3, is the most recent version of this long-established public domain terminal program for the 8-bit Atari. Many different authors have made revisions to support the 1030/835/XM301 modems and these can be found on lots of Atari BBS libraries.

The older Atari modems are inexpensive—\$50 or less—and save you the cost of a special interface if you don't already own a P:R: Connection or 850. But at a speed of 300 baud they are slow by today's standards. And their non-standard SIO connection means that they can be used *only* on the 8-bit Atari.

## NEW ATARI SX212

Atari's newest online product is the SX212 modem (\$99.95), which swiftly sold out its entire first shipment last Christmas. At 1200 baud, the SX212 is four times faster than the older Atari modems. This speed can save you a lot of online time costs when you transfer files over a long-distance BBS connection or a time-charge system such as CompuServe.

The SX212 has both SIO and RS232 interfaces, so it can connect directly to the 8-bit Atari or the ST. Or you can use a P:R: Connection or 850 to hook it up to the 8-bit.

The SX212 is Hayes compatible when it operates via

*continued on page 30*

As modem prices continue to drop, combination 300/1200/2400 baud modems are fast becoming widely affordable. My Patriot 2400E is such a new model that my serial number is in the low 200s. The Patriot 2400E is a "Made in the USA" external smart modem made by Anchor. It comes with an external power supply, phone cord and input/output connector, owner's manual, two-year limited warranty, and subscription packages for CompuServe, The Source and GENie worth up to \$75. Owners of 8-bit Ataris will need an interface like ICD's P:R: Connection or the old Atari 850 to use the Patriot 2400E. However, ST owners can simply connect this modem to their RS-232 ports.

The Patriot 2400E utilizes the standard AT command set, which includes commands for controlling the internal "S" registers. You can modify operating parameters and store desired conditions in resident non-volatile memory, allowing automatic reconfiguration whenever you turn on the modem.

The modem circuitry is housed in an attractive tan and brown case with a speaker, volume control and a full complement of status lights. The speaker can be controlled with either the AT command or an external knob. The top panel reveals a set of DIP switches for making the modem work with your particular terminal program. I didn't have to change any DIP switches, but I did change one S register to make the modem work correctly with 850 Express!.

The modem supports U.S. and U.K. pulse dial timing, pulse and tone dial (even mixed pulse and tone), pause, wait for dial tone, wait for quiet answer, flash hook, stored number dialing, auto-answer, and autodial. Also included are English and numeric result codes that tell you what the modem is doing, and an Escape mode that lets you reconfigure the modem while online with another computer.

The 41-page owner's manual is comprehensive and thorough, and it includes a handy command reference sheet. The well-documented self-test operations make it easy to troubleshoot any problems. The only thing the manual lacks is a customer service phone number.

With prices that compete with the 1200 baud modems, plus many standard features, I highly recommend the Patriot 2400E.—GLENN SMITH

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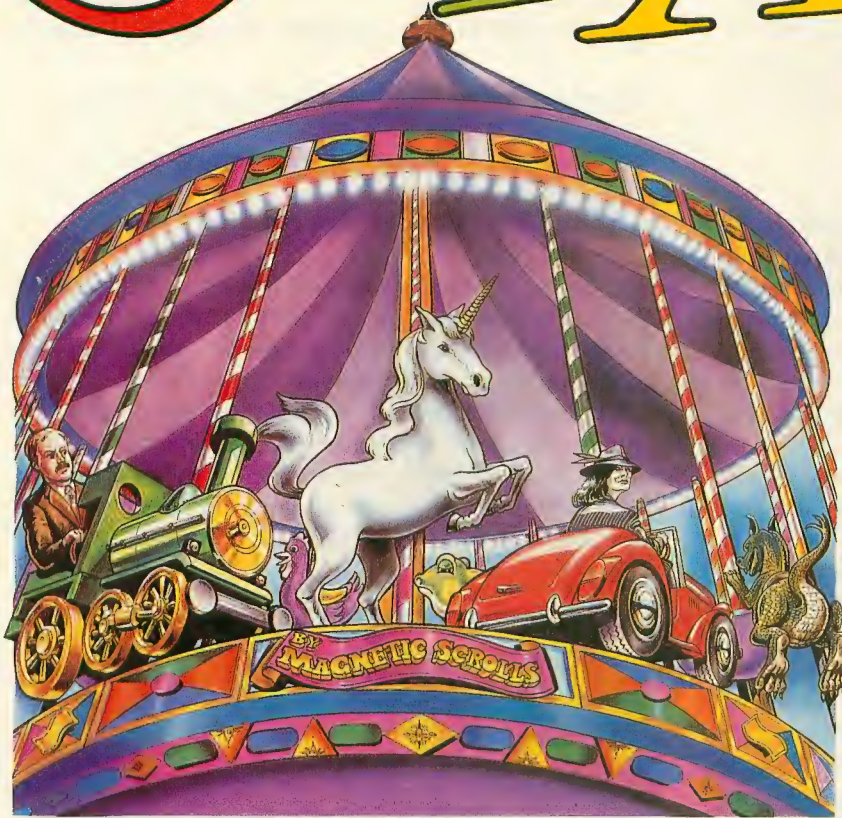
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## CHOOSING YOUR MODEM

continued from page 27

the RS-232 interface. Hayes commands are the standard by which all modems are measured. You'd be hard-pressed to find a better Atari 8-bit online package than the SX212 modem with RS-232 interface and Keith Ledbetter's 850 Express!, version 3.0.

The only problem with the SX212 is that 8-bit owners who don't want to buy an RS-232 connector won't have any commercial software available until Atari comes out with its promised add-on package featuring a new SX212 version of Ledbetter's Express! software. I'll be reviewing this entire SX212 Express! system for *Antic* as soon as it becomes available.

ST owners will find that the Hayes compatible SX212 works very nicely with Flash (from The Catalog), Interlink, ST Term, ST Talk, or any other terminal software that supports Hayes compatible modems.

## AVATEX, ANCHOR, SUPRA

Avatex makes a popular line of low-priced 1200 baud standard modems. If you come across a good deal on an Avatex, take careful note of the model name. The Avatex 1200 is a good general-purpose unit, but the 1200hc is preferable because the "hc" stands for fully Hayes compatible. The basic Avatex 1200 model requires you to switch manually between 300 and 1200 baud, which is not acceptable for running a BBS.

I've been using an Anchor Mark XII for nearly 3 years without any problems. It is extremely reliable and quite Hayes compatible. My only complaint about this unit is that it doesn't have a built-in speaker. I like to use a modem speaker to listen to the sound of telephone signal tones. The current crop of Anchor modems, including their new Lightning 2400 baud series, all have speakers.


Supra, formerly MPP, has been a longtime producer of modems for the Atari. If you run across an older MPP modem that connects to the 8-bit Atari via the joystick port, I have heard a fair number of complaints about these discontinued models. (*We were quite happy with the old MPP we used at Antic for several years.*—ANTIC ED) But the newer Supra 1200 and 2400 baud modems are quite good and come at good prices.

## 2400-BAUD SPEEDSTERS

If you truly have "the need for speed" online, shop for a good 2400 baud modem. Prices are coming down to the \$200 range. But I suggest avoiding mail order house brands because you don't know what you're getting and the quality can be uneven. I bought such a modem and it decided to hang up the phone every time my air conditioner kicked on. I didn't get my refund until after several months and about six long-distance phone calls.

Good, low cost "brand names" you can generally trust are US Robotics, Everex, Avatex, Supra and Anchor. If you come across a bargain brand you're not familiar with, find someone who owns one and has first-hand experience with it. ■

## Game of the Month

Type-In Software 

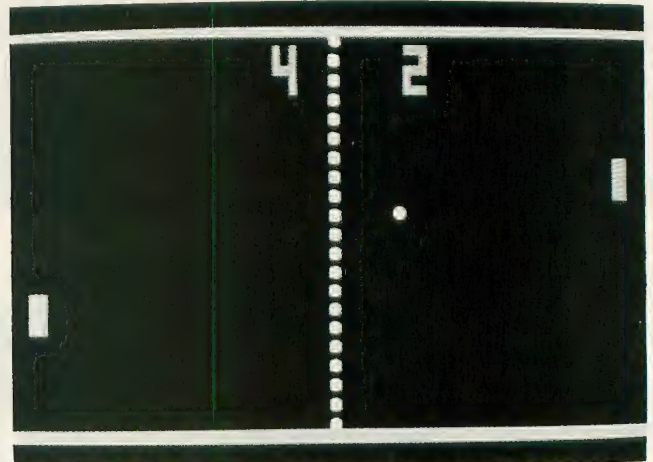
By BOB AYIK

# Perfected Pong

*New challenges from an old favorite*

**This short machine-language update of the very first Atari video game is jammed with powerful user-controlled enhancements. The BASIC translation of Perfected Pong works on all 8-bit Atari computers with at least 32K memory, disk or cassette. Atari paddles are required.**

If you got your early exposure to electronic games on the Atari 2600 Video Cartridge System, you undoubtedly have played a lot of Pong—the simplified ping-pong simulation where you move a paddle cursor to keep a ball bouncing against the edge of the video display. Not only was Pong the first home video game, it has been included free with many of the millions of 2600s sold since 1977. Well, it's time to dust off your old Atari paddle set (or compatible) and take on some brand-new Pong challenges.



I began writing Perfected Pong after playing the classic game with 8-year-old Laura. We were playing at slow speed and she was killing me. But she wasn't having fun. She kept claiming that I was letting her win.

Now Laura beams as she wins, because Perfected Pong has six different skill levels that can be set independently for each player. Every skill level has a different starting and maximum ball speed.

Perfected Pong also has 20 different angles of ball rebound, which gives you a lot of subtlety in controlling



how the ball spins off your paddle.

You can master Perfected Pong in practice mode, where one or two players volley without any scorekeeping and the ball bounces right back into play after "falling off" the end of the screen. Just tap any key and the ball will slow down to its beginning speed for that level.

There are also some nice new audio-visual touches. Players can select any of 16 possible color combinations for the screen. I used 16-bit sound channeling to create the familiar click of the ball hitting the boundaries. There is also a new twangy sound for the ball hitting the paddles.

When a point is tallied, the score pulsates as it changes. And while waiting for a serve, a pulsation also marks the paddle of the player who is to serve next.

Perfected Pong is a short (about 3.5K) update of Pong. It's written in fast, smooth MAC/65 assembly language.

## GETTING STARTED

PONG is a machine language program which would be difficult to type in original form. Listing 1, MAKEPONG.BAS, is an easy-to-type BASIC program that creates this machine language program for you.

Type in Listing 1, check it with TYPO II and SAVE a copy before you RUN it. When RUN, Listing 1 creates the machine language game for you, and writes it to a disk file called PONG.EXE. Antic Disk Owners will find PONG.EXE on this month's disk.

There are two ways to start the PONG program. Method 1: Type DOS, after making sure you're using DOS 2 or DOS 2.5. When the DOS menu appears, type I [RETURN] then type PONG.EXE [RETURN].

Method 2 will give you automatic loading: Format a blank disk, using DOS 2 or DOS 2.5. Next, type H [RETURN] to WRITE DOS FILES TO DISK. Now use DOS option C to copy PONG.EXE to this disk. Finally rename PONG.EXE to AUTORUN.SYS.

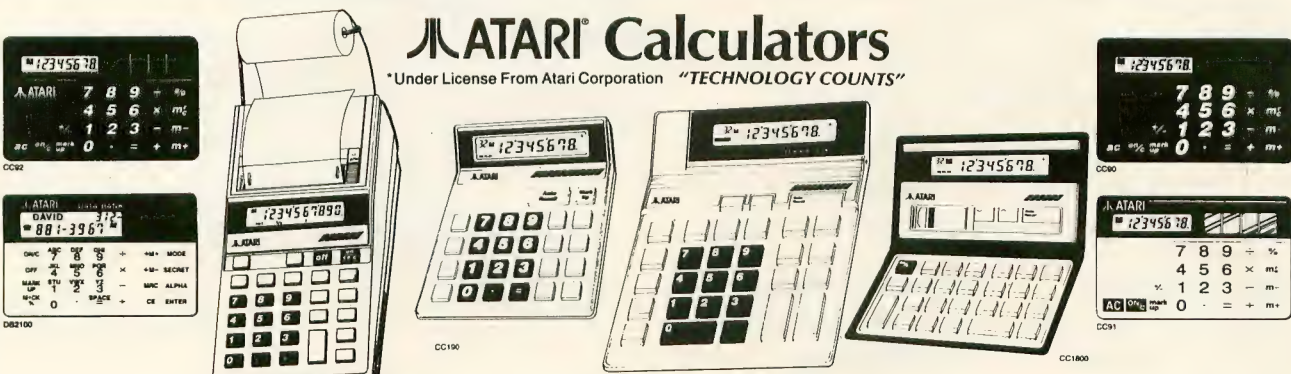
By now, you should have three files on your disk: DOS.SYS, DUP.SYS and AUTORUN.SYS. To play Pong, remove all cartridges from your computer, put this disk into drive 1, (XL/XE owners should hold down the [OPTION] key) and turn on your Atari. PONG will automatically load and begin.

The first thing you'll see when you play Perfected Pong is a flashy title screen that lists the keys to press for selecting game options. You can quit a game anytime and return to the title screen by pressing [CONTROL] [Q]. When you complete a game, press either paddle button to start a new game at the current settings, or press any key to return to the title screen.

*Bob Ayik of Maple Shade, New Jersey is an attorney practicing in the Philadelphia area. Perfected Pong is his first publication in Antic.*

FOR MORE ARTICLES LIKE THIS, CIRCLE 192 ON READER SERVICE CARD.

Listing on page 67




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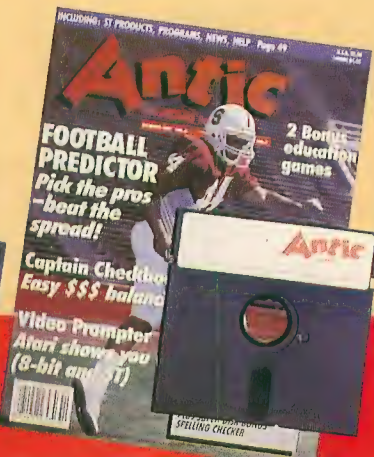
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By BARRY KOLBE

# Recall

*BASIC Concentration 8-bit memory game*

Recall is a flashy new 8-bit Atari BASIC version of the classic television game, Concentration. (An ST Concentration game appeared in last month's Antic.) This fast, smooth BASIC program runs on Atari 8-bit computers with minimum 48K memory, disk or cassette.

"How has your memory been lately?"  
"Ah. . . ah. . . I forget."  
"You might try playing Recall on your 8-bit Atari. . ."

Pit your memory against a human or computer opponent with Recall, a colorful new 8-bit BASIC adaptation of TV's classic Concentration game. The Recall game board consists of 30 numbered positions with an object hidden behind each one. A player chooses two numbers, exposing both object icons. If there is a matching pair, two characters of a hidden message replace the objects. You have earned a point and can take another turn. If you fail to make a match, it's your opponent's turn.

As Antic explained in last month's *GFA BASIC Concentration* for ST computers, the game is won when the complete message is guessed correctly, or fully displayed after the final successful pairing. You make a guess at the beginning of a turn by pressing [CONTROL] [G] and if you're right, you get all the remaining points.

## USING THE PROGRAM

To get started, type in Listing 1, RECALL.BAS, check it with TYPO II and SAVE a copy before you RUN it. If you have trouble typing in the special characters in lines 1650, 1680, 1720 and 1760, don't type them. Instead, type in Listing 2, check it with TYPO II and SAVE a copy. When



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you RUN Listing 2, it creates these hard-to-type lines and stores them in a file called LINES.LST.

To merge the two programs, disk users LOAD "D:RECALL.BAS" and then ENTER "D:LINES.LST". Cassette users: CLOAD Listing 1, then insert the separate cassette used for Listing 2 and ENTER "C:". Remember to SAVE the completed program before you RUN it.

Plug a joystick into port 1. In a two-player game, plug another one into port 2. When the game starts, press [SELECT] to choose between a one-player or two-player game. Press [START] to begin playing. In a one-player game, your computer opponent has an infallible memory, so watch out. But just to even the odds a little, your Atari makes the first move.

Recall comes with 10 messages starting at line 1900. These are randomly selected by the computer. You can change these or add to the list. Just make sure that the line numbers start at 1900 and are 10 apart. Also, change the variable I in line 1850 to reflect the number of statements you have. All messages must have fewer than 31 letters and you should avoid punctuation marks.

Now let's see. Was the boat under number 12, or was it 17? Or was the ring under 17 and the boat under 27?■

Barry Kolbe is a high school math teacher in Madison, Wisconsin and enjoys solving all kinds of puzzles. He co-wrote Antic Spelling Checker, the October 1987 Super Disk Bonus.

FOR MORE ARTICLES LIKE THIS, CIRCLE 194 ON READER SERVICE CARD.

Listing on page 70

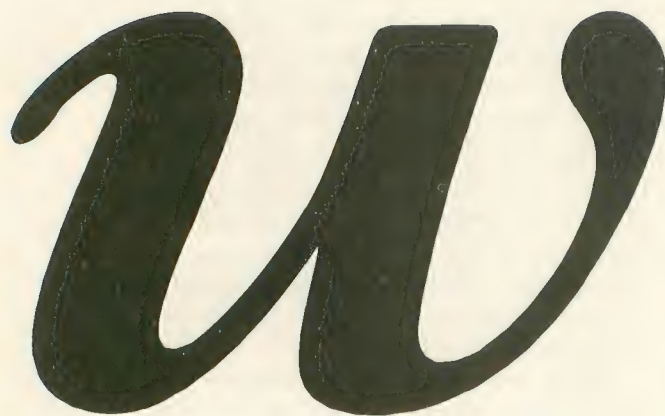


# Super Sorters

## *Part II: Mixed Numbers Sorting Routine*



By KEVIN PECK



Why won't all your ASCII text sort routines work with numbers in strings? The problem is that normal sort routines look at data one character at a time. As soon as the routine finds two unequal characters, it thinks it's done searching and decides whether or not to swap the two data elements, depending on the sort order. This is fine for text, but simply does not work with numbers.

Let's look at an example using a character-by-character sort on the names SMITH and JONES. The computer finds that the ASCII value of S is greater than J. Thus Smith is greater than Jones—so

the two last names must be swapped. This works as expected. We don't care about the rest of the text field. We know a swap is necessary after examining just the first character in each data element.

With the numbers 24 and 156, if we go character by character, the computer will first decide that since 1 is less than 2, then 156 must be less than 24. Oops! We need another sorting method that looks at the whole number first before sorting character by character.

My Mixed Numbers sort routine first determines the signs of the two numbers. If they're not equal—one is positive and one is negative—then we don't even have to look at the rest of the number.



*This concludes a two-part series of powerful sorting routines for intermediate programmers, which began with Multikey Sort in the April 1988 issue. Mixed Numbers is a machine language routine that sorts strings containing mixed numeric data types—positive numbers, negative numbers and floating decimal point numbers. Also included is a general-purpose substring finder routine that does multikey sorts within the Mixed Number sorter. This BASIC program works on all 8-bit Atari computers of any memory size, with disk or cassette.*

---

We can decide right away if we need to swap them. If the signs of the two numbers are equal, then we move to the next test.

The second test involves finding the lengths of the two numbers. We'll examine each number, character by character, until we find a decimal point or a space. We do this because 1.2345 is less than 45, although 1.2345 has more digits. Using this method, 1.2345 has a length of 1, and 45 has a length of 2. If the two lengths are unequal, then we can decide right now whether or not to swap them. Otherwise, we must go to the third step.

Our third step goes back to looking at the two numbers on a character-by-character basis. This only works for numbers of equal lengths—the only kind we'll have if we make it this deep into the testing. But what if they're the same length before the decimal point but have a different number of digits after?

According to part two of the test, the numbers 34.567 and 34.5 both have a length of 2. The character-by-character comparison will take care of problem with the digits after the decimal point.

The computer will find the first four characters of each number to be equal. When it gets to the fifth character it will find a 6 in the first number and a space for the second. According to the computer's internal table, the value of a space is less than the value of any number so the computer will correctly decide that 34.5 is less than 34.567.

The only problem with this three-prong numeric sort arises when you have two negative numbers. While 45 is greater than 38, -45 is less than -38. Mixed Numbers checks to see if it's sorting two negative numbers, and if so, it reverses its swap decision.

## GETTING STARTED

Type in Listing 1, NUMSORT.DEM, check it with TYPO II and SAVE a copy before you RUN it. If you have trouble typing in the special characters in lines 2010-2100, don't type them in. Listing 2 will create them for you. Type Listing 2, checking it with TYPO II, and SAVE a copy to disk.

When RUN, Listing 2 creates these hard-to-type lines, and stores them in a file called LINES.LST.

To merge the two programs, disk users LOAD "D:NUM-SORT.DEM" and then ENTER "D:LINES.LST." Cassette users: CLOAD Listing 1, then insert the separate cassette used for Listing 2 and ENTER "C:".

Finally, remember to SAVE the completed program before you RUN it. You should also keep a copy of LINES.LST, the machine language sort routines, for use in your own BASIC programs.

## HOW TO USE THEM

Here is the proper format for using this routine in your own BASIC programs:

**A = USR(ADR(SN\$), FIRST, LAST, FIELDLEN, OFFSET, RECLen, ORDER)**

And here is an explanation of each part of the statement:

**A:** A USR call may return one value to your BASIC program. That value is sent here. BASIC demands that *all* USR calls be written this way, even if no value is returned.

**ADR(SN\$):** Address of the string containing the sort routine. This string appears in lines 2030-2100 of the demo program.

**FIRST:** Memory address where we will start the sort. It will always be greater than or equal to the address or the string containing the sorted data.

**LAST:** Address where the sort ends. It must be greater than FIRST, or the computer will lock up.

**FIELDLEN:** Length of the numeric field we'll be sorting on. The data string must be put in fixed-length record format. This means that extra characters in the numeric field must be padded with spaces for the routine to work properly.

**OFFSET:** Amount of character spaces into the record where the numeric field starts.

**RECLen:** Length of each record within the data string.

**ORDER:** Sort order. Use 0 for an ascending sort, or 1 (or any non-zero value) for a descending sort.

*continued on next page*



## DEMO

The demo program uses string DS\$ set up as shown below:

Figure 1

Last Name	First Name	Income	Tax Owed
7	6	8	7

Record Length = 28

Line 1070 in your completed demo program enters the subroutine to set up the two machine language strings.

Lines 1120-1200 read the sample data from lines 1590-1780 into one big string, padding any missing characters with spaces.

Then the string is printed as is, using the routine starting at line 1470. The bottom of the screen will tell you that you are now viewing the raw, unsorted data. Press the [SPACEBAR] to continue.

Now we'll actually sort some data. First we'll do an ascending sort by income. This is done in line 1230: ADR(SN\$) is the address of the machine language string, ADR(DS\$) is the address of our data string, and ADR(DS\$)+LEN(DS\$) is the ending address of the string in memory.

The income field length is 8. And 13 is the "offset" from the start of the record to the sort field. The offset is obtained by adding the lengths of all fields *before* the field you're manipulating—as explained last month in *SuperSorts: Part I*.

Both last name (length = 7) and first name (length = 6) appear before income. Since the sum is 13, the offset of income is 13. *Figure 1* gives us the record length. Finally, let's do an ascending sort, giving ORDER a value of 0.

Line 1240 displays the new sorted information, tells you the current format and waits for you to press the [SPACEBAR] again.

Line 1250 sorts the data string again, but by tax owed this time—in descending order. The 8 in line 1230 is changed to a 7, so the length of the sort field is now 7 characters. The offset is changed from 13 to 21. The new format is printed to the screen in line 1260.

## SORTING TECHNIQUES

I've found that I usually sort the database by a normal string field and then sort numeric data within smaller sections. For example, let's use a database containing all of our programs, the language they're written in, and their length in bytes so we know how much memory we need for each.

Let's sort them by language first: BASIC, ACTION!, Logo, etc. Then let's sort the programs by memory length within each language. My Multikey sort routine won't work because of the numeric memory length field. We need the starting and ending address of each language within the

main data string so we can properly sort the memory length.

The second machine language subroutine is stored in FS\$. It finds the first and last occurrence of a field within your data string, then it returns the actual address of these items, which lets you pass the values to the numeric sort routine—which requires a little more work to use it properly.

This is the format of the routine:

**START=USR(ADR(FS\$), ADR(D\$), ADR(FLD\$),  
LENFIELD, OFFSET, LENRECORD, RECCNT)  
LAST=PEEK(205)+256\*PEEK(206)**

I used the variable START instead of A=USR(. . .) because the routine is passing information back to us this time. In this case, it's returning the address of the first element in the sort.

Note that START will equal zero (0) if the field string is not found within the main data string. Be sure to check START for a 0 value before calling the sorting routine. Otherwise, if START is equal to 0, the computer will attempt to sort Page 0 memory and lock up.

You should also check to see if START+RECORD LENGTH is equal to LAST. If so, then only one record containing the given field string was found. And sorting one field will get you nowhere. The second line retrieves the second bit of information supplied by the routine.

Here are the variables:

**ADR(FS\$):** Address of the machine language routine.

**ADR(D\$):** Starting address of the data to be searched.

**ADR(FLD\$):** Address of the string containing the field information we're looking for.

**LENFIELD:** Length of the field we're looking for. This should be set to LEN(FLD\$) for the routine to work properly.

**OFFSET:** Number of character spaces into the record where the field starts.

**LENRECORD:** Length of each record within the data string.

**RECCNT:** record count—the number of records to search within the main data string. To search the whole data string, this will be set to LEN(D\$)/LENRECORD. You could sort a subset of the main data string by passing a value between 2 and the actual record count.

The demo program uses the String Find routine in line 1560. We'll use a data string with a fixed record length, using two fields: field one is the programming language and field two is the memory length in bytes:

Figure 2

Program Language	8
Length in Bytes	3
RECORD LENGTH 11	

The routine is called several times, starting in line 1370. We must first tell the routine what language to look for by storing the language name in I\$ before calling the rou-

*continued on page 38*



# Poland To USA

## Via

### Antic I/O

---

**The most unusual story  
we have ever published**

By TADEUSZ MENERT

I don't know how many **Antic** readers will remember my letter published in the April, 1986 I/O Board under the title "Poland Teacher." It was a request for readers to send any Atari-related materials for use with my students at the University of Krakow. I explained that few Poles had Atari computers and that software was even scarcer than the small quantities of basic food products reaching this distant and quite different country—where money cannot be exchanged for any Western currency.

Within weeks after publishing my message, I was almost drowning in the wave of letters, magazines and disks. Dozens of people who never met me were suddenly offering to pay the subscription fees to various computer magazines so that I could receive them directly in Poland.

It is said that extensive users of impersonalized computers are deprived of warm feelings. On the contrary, these supposedly heartless computer monsters actually appeared to be much more friendly and understanding than others who never touch a computer keyboard. It seems that the popularity of personal computers creates a network of friendly users willing to share their concepts and knowledge no matter where they live or what they do.

In June 1986, two months after my letter appeared in **Antic**, I was forced to leave Poland due to various political reasons. I had to leave behind my Atari, along with almost all my belongings. With my wife and our four-year-old son, Mike, I landed in West Germany.

It seemed quite natural to try to get to an English-speaking country. I was, after all, an English teacher. The United States was our choice. However, according to cur-

*continued on next page*



*Tadeusz and Jolanta Menert with their five-year-old son Michal.*

Don Looper



## POLAND TO USA VIA ANTIC I/O

*continued from previous page*

rent immigration laws, being a political refugee isn't enough for admittance to the USA. Sponsors are needed who will help a refugee settle down successfully.

With no relatives in America and only a few pen-pal Atarians, it seemed almost impossible for us. Besides, deprived of my 800XL and disk drive I could no longer count on writing interesting letters, full of computer news and gossip, to the States.

Although I never openly asked any of my friends for help in getting across the Atlantic, they offered such help on their own! By September 1986, we already had our sponsor, Marlin. But there were still long months of waiting while our paperwork was processed by the American immigration authorities.

Having quite a lot of time at my disposal, I looked around to see how well the Atari was doing in West Germany, since I had read so many positive things about the growing Atarian population there. However, it was hard to find a single active users group. It was somewhat sad to see that other computers had so many active users groups holding regular meetings, advertising in local papers, organizing computer shows. And I found only one or two Atari-specific magazines—they were exclusively for the ST.

In August 1987 we finally received the long-awaited letter saying that we would be allowed to come and live in

the United States of America. Less than a month later, we landed happily in Colorado, heartily welcomed by people we had never seen before in our lives. When they decided to help us the year before, the only thing they knew about us was that we needed help. Thanks to them, we were able to start our new life on the American soil.

But some thanks also must go to that little magic box called a computer. I am often asked how it happened that we ended our long journey in Colorado. Before giving any more detailed answer, I always reply "Thanks to Atari!" and I watch the confused looks.

When you are starting life over again from the very beginning, there are many important things to take care of. But although it will definitely be some time before we can afford to buy a computer, I know what make I will choose when the time comes. I owe you too much, Atari, to trade you for something else!

P.S. I would like to assure everyone who sent Atari materials to Poland in answer to my 1986 I/O letter that it is still being used by my friends living there. This has been a great support to those needing helpful information that would otherwise be unavailable in Poland. Thank you once again. ■

FOR MORE ARTICLES LIKE THIS, CIRCLE 191 ON READER SERVICE CARD.

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*Tadeusz Menert, former English professor and present janitor, still welcomes any letters from Atarians willing to write to him at: 4040 S. Garfield Avenue, Loveland, Colorado 80537.*

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## SUPER SORTERS

*continued from page 36*

tine. We must call the routine once for each language before displaying the data again.

Line 1420 sorts on the Length In Bytes of each program. Notice that the parameters are passed from the String Find routine when we call the sort this time. We don't want to sort the entire data string here, but rather a subsection—only programs written in BASIC.

## SUBSECTION SORTS

To sort each program language subsection of the data string, we'd use these same lines over again for each possible value of program language. We only have to change the value of FLD\$ each time—the rest of the lines remain the same. But this is cumbersome if there are several possibilities for the key sort field.

While using a database program, you might want to examine a subsection of the database. Using the program language database example again, let's say you want to see all Logo programs, with their memory length in bytes. If you've sorted the string by program language using the Multikey Sort routine, then a quick call to the String Find routine will supply the addresses necessary to display the requested information. Here's another example:

```
200 FLD$ = "LOGO"
210 FIRST=USR(ADR(FS$), ADR(D$), ADR(FL$),
LEN(FLD$), 0, 15, LEN(D$)/15)
```

```
220 IF FIRST=0 THEN PRINT "No matching data
found.":GOTO 300
```

```
230 FOR I= FIRST+ADR(D$)+1 TO LAST+ADR(D$) STEP
11
```

```
240 PRINT D$(I,I+10):NEXT I
```

```
250 REM Program continues here
```

These program lines would display all Logo programs and their memory lengths.

You could also use the String Find routine to make sure that you haven't entered any duplicate data. Some database applications don't let you duplicate certain fields. If you enter "Paper Clips" while in the Add Category function of an inventory database, the program must check to see if that category already exists. If so, then the program must tell you so and instruct you to enter the Adjust Inventory mode to add the newly purchased paper clips to the database.

To test for duplication, enter the new field data and use that data as the FLD\$ parameter for the String Find routine. If START=0 after calling the routine, then the program can add the new information to the list. Otherwise the program should warn the user of the duplication and let you exit from the Add Category routine. ■

---

*Kevin Peck wrote the Word Searcher puzzle solver (Antic, March 1987) as well as Super Sorter: Part I (April 1988). He is a computer science major from Salina, Kansas.*

FOR MORE ARTICLES LIKE THIS, CIRCLE 190 ON READER SERVICE CARD.

*Listing on page 69*



# The Ever-Changing Atari Marketplace

## Six Antic Years

By NAT FRIEDLAND, *Antic* Editor

### WELCOME, XE-GS OWNERS

Atari Corp. sold 100,000 XE Game Systems in the U.S. last Christmas—every unit that they manufactured last year. And of course the XE Game System is just a cosmetically redesigned 800XL/65XE 8-bit computer.

True, the XE Game System is being marketed as a device for playing entertainment software cartridges without needing a disk drive. But it seems very likely that after a few months with challenging "games" like the Flight Simulator II cartridge included with the XE Game System, many new owners will become full-fledged Atari users by adding the advanced new Atari XF551 drive (\$199.95) which is now available.

Thousands of XE Game System owners probably will soon want to explore more of the outstanding capabilities of the 8-bit Atari. They might first try large-scale graphic adventure game disks that need saving between play sessions. From there, it's an easy step to using paint programs, word processors, databases, speech products—and the many fine programs available from users groups, online and on Antic Disks.

Meanwhile, the first big batch of Atari entertainment cartridges for the XE Game System is being shipped (and will be reviewed in the next issue of *Antic*). These cartridges can be used on *any* Atari 8-bit computer. The 12 impres-

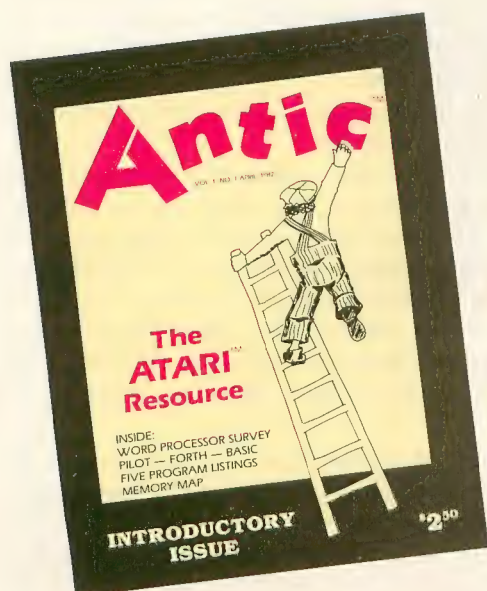
sive titles feature classic software that has either *never* been available for the 8-bit Atari or has long been unavailable—Battle Zone, Blue Max, David's Midnight Magic, One-on-One Basketball, etc. Naturally, *Antic* will review all new Atari cartridges as soon as they become available.

### CONSTANT CHANGE

Considering that Atari personal computers have always been a comparatively specialized segment of the overall computer market, *Antic* has certainly seen many dramatic Atari changes during our first six years of publication. When publisher James Capparell put out our first issue in April 1982, an Atari 800 with 16K memory and a bulky 810 disk drive cost \$1,679.95.

Then as now, *Antic* had no doubts that the Atari was technologically the best 8-bit computer ever made. But it took an adventurous and individualistic computer user to recognize this. The old Atari, Inc. owned by Warner Communications never marketed their great computers effectively. At first the company was too busy making unprecedented amounts of money on video cartridge systems—peaking at \$2 billion sales in 1982, the year of Pac Man. Then when the bottom dropped out of the video game market in 1983, shell-shocked executives were too

*continued on next page*



Cover and two inside pages from the first issue of *Antic*, April 1982.



busy trying to halt a \$450 million loss!

A totally unexpected bombshell hit the Atari world in July 1984 as Warner sold the company for \$240 million to Jack Tramiel, the man who built Commodore Computers (especially the Commodore 64) into Atari's victorious arch-rival in the marketplace. The feisty, aggressive Tramiel swiftly finished restructuring the company into a lean-and-mean competitor, changing its name to the Atari Corp.

In an astonishing six months, the new Atari Corp. premiered the groundbreaking 520ST computer at the January 1985 Consumer Electronics Show, and then brought it to market by June. Without question, this was a unique, even heroic, feat that won Atari renewed worldwide credibility. In November 1986, Atari Corp. went public with a sold-out \$50.6 million stock issue. And the price of Atari shares more than doubled before falling back as a result of the October 1987 stock market slump.

## ATARI COMMUNITY '88

**Antic** Magazine is proud to have completed six years of service to the worldwide Atari community. The unique loyalty of Atari-using **Antic** readers enabled Antic Publishing Inc. to grow from classic "kitchen table" beginnings to a 54-employee company occupying an entire three-floor San Francisco building.

The success of **Antic** Magazine is what made it possible for us to bring Atarians these other important services:

- **ANTIC ONLINE**, our pioneering three-year-old electronic publication on CompuServe that provides the fastest Atari news, software and graphics files for downloading, and a vast archive of reviews and articles.
- **ANTIC SOFTWARE**, probably the leading supplier of high-quality programming for all models of Atari computers, featuring 8-bit software like RAMbrandt and ST products like CAD-3D and the Cyber series.
- **START**, the first all-ST magazine—which jumps from four to eight yearly issues in 1988.

## LET'S WORK TOGETHER

In 1988 as always, **Antic** isn't content just to point out whatever problems are facing the Atari community. We're here to work with Atarians and do what we can to make things better for everybody.

First of all, since **Antic** is presently the *only* Atari magazine that can be counted on to come out every month with product news for all models, we are committing to an all-out effort to publish *every* product review in the *first* available issue—without any holdover reviews if at all possible. In fact, we already started doing this in the January 1988 issue, shortening reviews when necessary in order to cover every 8-bit and ST product without delay.

Also, next month we will start a major new 8-bit programming contest that goes beyond the highly successful Practical Applications Contest (November 1987). Complete rules and prizes will be explained in the June 1988 **Antic**. But don't worry if you already made a sale to **Antic**

this year, all programs accepted for publication during 1988 will automatically be considered for the contest.

The editors of **Antic** believe most Atari users would agree that the biggest problem facing Atarians today is the difficulty of finding software and other products for our computers. Product unavailability is especially severe for the 8-bit Atari, but the ST situation could use considerable improvement too.

Unfortunately, this problem is too big for **Antic** to fix by itself. But if enough users are willing to become just a bit more involved, we think that genuine progress could be made! After all, a pre-release copy of Springboard's new 8-bit Atari version of Newsroom just arrived at **Antic**—a product that would never have been created if it wasn't for the hundreds of readers who responded to **Antic's** 1987 write-in campaign.

If you'd like to find more Atari products at convenient dealers, here are few simple things you can do: **TELL** your nearby software dealer that you want to buy products for your Atari there. **JOIN** your local users group. **SUPPORT** Atari software publishers by buying the programs you want—**DON'T** trade illegal copies with your friends!

And if you want **Antic** to continue coming out every month with the best coverage supporting *your* Atari computer—please give this magazine the support it needs from you! **SUBSCRIBE**—that's the most important thing you can do to keep **Antic** at its best for you! Also, submit good articles, programs, reviews and tips. Don't be shy about it. Remember, **Antic** has always been written primarily by its readers. Right now, we can use more reviewers with all kinds of special backgrounds—from ST sysops to 8-bit hardware upgraders. So write to **Antic** and tell us about your areas of expertise.

## WRITE TO UNCLE JACK

Now let's get together for a special project that could make more Atarian products available in *your* area soon! **Antic** is asking you to write a letter this month to Jack Tramiel, Chairman of Atari Corp. Tell him these two things:

1. Give Jack the addresses and phone numbers of the computer stores in your area that you would like to see carrying Atari products.
2. Tell Jack what it would take for Atari to get *you* to buy more of their products.

Please be courteous and realistic in your letters. "Cut 1040ST prices to \$99, you \*+&@#%" is not the kind of communication that will convince people about the correctness of your viewpoint. Whenever possible, send your letter as a printout—to demonstrate that you are a serious user who has invested in a computer, a printer and word processing software. You should write to Mr. Jack Tramiel at: Atari Corp., 1196 Borregas Avenue, Sunnyvale, CA 94086.

And, as in our previous successful write-in campaigns, please be sure to send a copy of your letter to **Antic** Write-In, 544 Second Street, San Francisco, CA 94107. That way we can learn from your suggestions too, and perhaps pass around the store list to other third-party Atari developers. ■



*Third Annual*

# ANTIC AWARDS

*Outstanding Atarian Achievements of 1987-88*

This issue's Third Annual Antic Awards show there is a wide spectrum of large and small companies, individuals and clubs providing outstanding support for the Atari Community.

This year, **Antic** is pleased to honor some 18 Outstanding Atarian Achievements, more than ever before. As we decided in 1987, no winners are eligible for an award in two consecutive years. There are many other deserving Atari contributors whom we expect to honor in future anniversary issues. With the help of loyal, dedicated Atari users, **Antic Magazine** looks forward to meeting the ever-changing needs of the Atari Community for many more years to come.



*Outstanding*



*Products*

*BBS*

*Users Group*

*Services*

*Professional Programmer*

*Antic Contributor*

By GREGG PEARLMAN, Antic Assistant Editor



# James Pierson-Perry

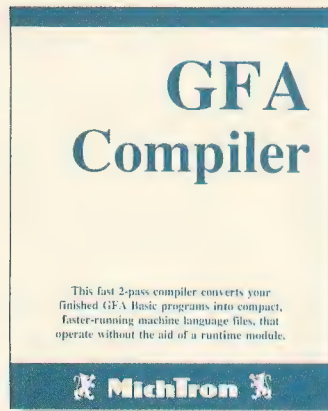
*Outstanding Antic Contributor*



Having appeared in every **Antic** but two since March, 1987, Jim Pierson-Perry is undoubtedly our most prolific Contributing Writer these days—as well as the most versatile contributor. A research chemist for Dupont, Jim writes programs and reviews products on both the 8-bit and ST computers. His expertise includes music and MIDI software, scientific and financial applications and adventure games. Jim's *Designer Labels* program (April, 1987) made it possible to put Print Shop icons on stick-on labels and was just about the most popular **Antic** program last year.

## Publishing Partner

*Outstanding Product*



SoftLogik's **Publishing Partner** desktop publishing program, is one of the most ambitious packages being marketed for the ST. It is GEM-based and easy to use, and putting DEGAS or NEOchrome pictures into your text is no problem. To date, Publishing Partner is the most popular ST desktop publishing software around. It was written entirely in 68000 assembly language by Deron Kazmaier, whose new **Publishing Partner Professional** upgrade is due shortly with even more powerful features.

## GFA BASIC

*Outstanding Product*

Quick, memory-efficient **GFA BASIC** is the best BASIC programming language available for the Atari ST. Its main drawback is that unlike ST BASIC, you don't get a free copy of GFA BASIC when you purchase your computer. But users have been able to overlook this inconvenience, since GFA BASIC costs just \$79.95 and supports many GEM functions by keyword. Most **Antic** ST programs are now written in GFA BASIC, a German import distributed in the U.S. by MichIron. GFA BASIC boasts a rapidly increasing number of support products, including a compiler for standalone machine language code.

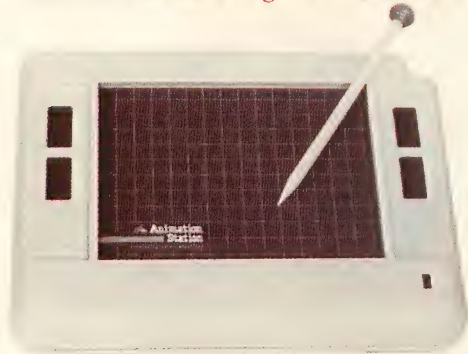
## ANTIC AWARDS



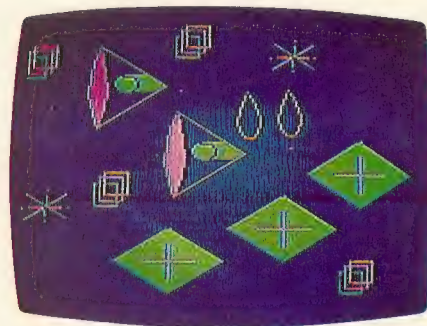


# Animation Station

*Outstanding Product*



Suncom's **Animation Station**, reviewed in the November 1987 **Antic**, consists of a sturdy, well-designed graphics tablet and Baudville's DesignLab paint program. Suncom, best known in the Atari market for their joysticks, is doing a fine job filling the void left when the KoalaPad and Atari Touch Tablet were no longer being made.



## Virtuoso

*Outstanding Product*

**Virtuoso Desktop Performance Studio** (April, 1988) brings true desktop video to the 8-bit Atari XL and XE. Virtuoso is a unique music/graphics interface that enables experienced users to create impressive animations with soundtracks—in real time.

This is the kind of dramatically innovative software that gives the 8-bit Atari its best chance of staying viable. The brainchild of Joseph Lyons and Frank Schwartz, Virtuoso can be used for many other applications. A marine navigational plotting adaptation has already been licensed.

## Boris Tsikanovsky

*Outstanding Professional Programmer*



The ST has always had 512 colors, but until **Spectrum 512**, you could use only 16 at a time. Boris Tsikanovsky has changed all that and then some—**Spectrum 512** uses “dithering” techniques to simulate not just 512 colors, but 24,389. In **Spectrum 512** you can use **DEGAS** and **NEOchrome** pictures or convert Amiga .IFF and CompuServe GIF files.

Two recent additions by Boris give **Spectrum 512** even more flexibility. **Digispec** lets you convert *any* Amiga picture—even a 4,096-color image. **Unispec** turns **Spectrum 512** into a desk accessory so, for example, you can grab a chunk of your picture while in **DEGAS** and paste it onto the current 512-color picture.



# PrintMaster Series

*Outstanding Product*



## TurboBase

*Outstanding Product*

MicroMiser's **TurboBase** (*Antic*, December 1987) is a high-powered business software package that rivals the integrated applications available for IBM PC and works on 8-bit Atari systems costing a fraction of the PC price. Turbobase sets up customer directories, dated records, inventory, invoices, payroll and more. The program can take advantage of just about every hardware enhancement available for the 8-bit Atari, such as the 1Mb RAMdisk capability of ICD's Multi I/O Board and SpartaDOS 3.2.

This continuing series of graphics/text page printing programs from Unison World works like a highly advanced ST version of the 8-bit Atari's classic Print Shop software. But **PrintMaster** uses the ST's power to support much sharper graphic images and a much greater variety of printers. The series currently includes PrintMaster and PrintMaster Plus, as well as Fonts & Borders and PrintMaster Art Gallery I and II.



## CompuTalk

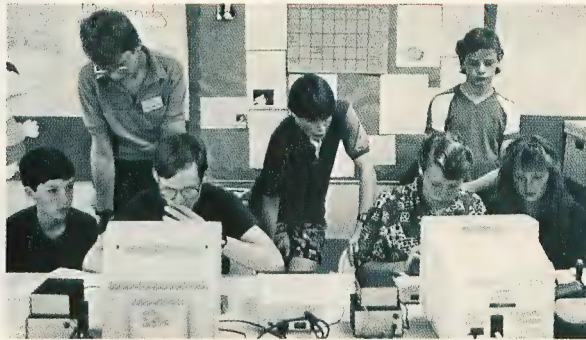
*Outstanding BBS*

Take six 48K Atari 800s, each with a modem and an 850 interface, link them all together via a 20Mb Corvus Hard Disk and Multiplexer. Now toss in 25-year-old sysop Kris Meier and you have **CompuTalk** of Ft. Worth, Texas, possibly the largest Atari bulletin board system operated by a private individual. Meier said that before the article "Texas-Sized BBS" in the August, 1987 issue of *Antic*, his BBS received around 100 calls a day. But now that more Atari users know about it, that number has increased to 230—and 80% of Meier's callers read about CompuTalk in *Antic*.



# PCS School

*Outstanding Service*



At Patrick McShane's **PCS School** in Nampa, Idaho, students ranging from first grade through 12th use Atari computers to push to the limits of CAMLU—Computer Activated Motorized Lego Unit. Among the Atari-controlled Lego equipment they've developed are a plotter and a hoist that lifts upwards of 40 pounds with a 4-volt motor.

Since the publication of *Maverick Atari School* in the October 1987 **Antic**, McShane's enrollment has more than doubled, and students attend from all parts of the country. "We've even heard from people from behind the Iron Curtain," says McShane.

## CLAUG

*Outstanding Users Group*

Since 1985, volunteers from CLAUG (ChicagoLand Atari Users Group) have been a mainstay in helping staff the Atari Corp. booth at the Summer Consumer Electronics Show each June in Chicago. In another CES innovation, CLAUG now holds a special dinner meeting, attended by a busload of Atari-world top executives, which is the closest thing to an Annual Atari "Roast." CLAUG exemplifies the kind of creative dedication that represents Atari users groups at their best.



## ISD Spreadsheets

*Outstanding Product*

**VIP Professional** is the only spreadsheet available for the Atari ST that is fully compatible with Lotus 1-2-3, the industry standard.

VIP adds GEM's smooth graphic interface to the power and flexibility of 1-2-3—it's command and file compatible. The simpler but still powerful **Masterplan** is a scaled-down version of VIP Professional, trading full Lotus compatibility for a friendlier user interface and a lower price.

## ANTIC AWARDS





# Thunder Mountain Software

*Outstanding Product*

ANTIC AWARDS



Thunder Mountain is Mindscape Software's "discount house"—a company dedicated to providing Atari 8-bit users with fine software for just \$9.95. Thunder Mountain has a full line of educational and entertainment titles as Songwriter, Mission in Our Solar System, Run for the Money and Batty Builders. Many Thunder Mountain releases are reissues of successful older software that otherwise would be unavailable.



## Midwest Computer Camp

*Outstanding Service*

Housed on a magnificent old estate in the woods north of Indianapolis, Midwest Computer Camp is the largest full-time, year-round residential computer education camp in the U.S. Campers from age 8 to 18 spend six hours a day on computer activities, and there's a counselor for every four campers. Just about every conceivable brand of personal computer is available, including plenty of Ataris.

## dBMan

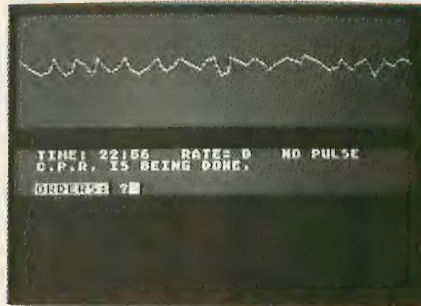
*Outstanding Product*

If you're an ST user who is experienced with the industry standard dBASE III database software, **dBMan** by Versasoft is the serious ST database system you're looking for. dBMAN supports command files, local and global memory variables, and permits flexible report creation. The software gives professional database designers the flexibility and power needed to develop turnkey systems.



# Cardiac Arrest!

*Outstanding Product*



A 1988 episode of television's "St. Elsewhere" featured a computerized medical simulator that enabled doctors to practice emergency techniques before treating human patients. That's just what **Cardiac Arrest!** delivers—for both Atari 8-bit and ST computers.

Our medically trained reviewer (May 1987) called Cardiac Arrest! "fascinating, useful and an invaluable study aid in Advanced Cardiac Life Support." Cardiac Arrest! is produced by Mad Scientist Software, physician Bruce Argyle's small Utah company which exemplifies how individual Atari enthusiasts can successfully bring a fine commercial product to market.

## Supra Corp.

*Outstanding Product*



Supra's fine product line of hard disks, modems and buffer/interfaces has long been in the forefront of hardware support for both Atari 8-bit and ST computers. Supra's ST hard disks come in a full range of memory sizes, including 10Mb, 20Mb, 60Mb. And Supra produces one of the very few hard disks made for 8-bit Ataris. The new Hayes-compatible **Supra-Modem 2400** is another excellent product which will be reviewed in next month's *Antic*.



## Firebird Software

*Outstanding Product*

Those hit games, *The Pawn*, *The Guild of Thieves* and *Star Glider* all come from one place—

**Firebird Licensees**, probably the most prolific Atari game marketer for the past year. Firebird's games combine flashy graphics with flashy packaging—and not just for the ST. Many titles are now available for the 8-bit Atari as well.



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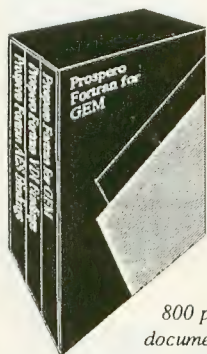


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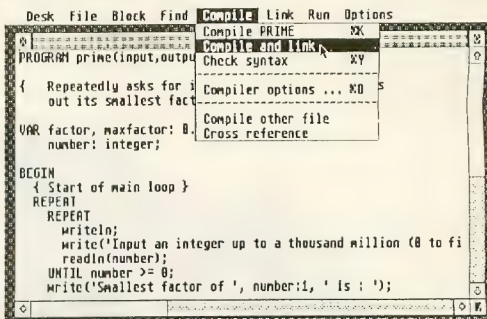
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Parrot II lets you modify the sounds on a graphic display to create brand new sounds and special effects. Best of all, the sounds and voices can be put into your own programs that can be used on any standard Atari. Explore the world of digital sound and music. **ONLY \$59.95**

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"...the power and flexibility..."

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adjust those with the powerful editor...the program truly does allow almost any historical, fantasy or science fiction battle to be created."

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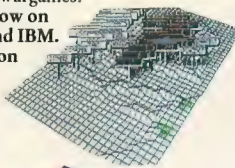
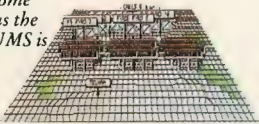
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# ST Resource

All the latest news for the ST user


May 1988



## *Crazy Chicken Barrage*

*Watch out for the eggs, grenades and knives!*

By STEPHEN EVERMAN & PAUL PRATT

Type-In Software 

Ever want to just chuck it all and get a chicken farm? Well, you'll change your mind after playing Crazy Chicken Barrage, because this farm is out to get *you!* The game runs in low resolution and a color monitor is required.

High in their roosts above the barnyard, your hens produce egg after egg—and then they toss them down without a second thought. If you don't want to go broke, you must catch each egg before it splats on the ground. To make things even worse: You're stuck with war surplus chickens—a rare breed that lays hand grenades and knives as well as eggs. It's almost as if the chickens want to make sure that you "buy the farm" in more ways than one.

But you do have four lives and your profits are stored as points on the disk, so your heirs can remember you fondly.

### **GETTING STARTED**

Using Michtron's GFA BASIC, carefully type-in BARRAGE.BAS and Save a copy before you Run it. Antic Disk users who do not own GFA Basic will find a ready-to-run version of the program, BARRAGE.PRG, on the back of the monthly disk—along with a Help file explaining how to transfer the program to an ST disk.

To start playing Barrage, click on PLAY. The farm boy onscreen jumps into egg-catching position and the action begins.

Moving your mouse left and right moves the farm boy accordingly. Help him grab those eggs before they splat. That's tough enough, and it gets tougher. You start off with one egg, but eventually you'll have to juggle four at a time. Then just when you think you've gotten the hang of that, there'll be something even tougher to contend with—another round.

There is no limit to the number of rounds you can play,

*continued on next page*



and as the game proceeds, the eggs fall at different angles and speeds. They might become grenades that explode if they hit the ground, or knives that kill if you catch them (so let them drop!). And everything keeps falling faster and faster.

When you just can't take the pressure anymore, flee to the entry screen by clicking the mouse. When you're ready, click on PLAY again and you'll return to the round you left.

When your feathered friends finally do you in, your score is saved to disk if it's higher than previous high score. And if there isn't a high score file on the disk, the program will create one.

## PROGRAM NOTES

The first thing we do after checking the resolution with an Xbios function is to store the screen memory address in the variable Scr\_mem by LPEEKing address 1102.

Next, the Fix\_colors() subroutine saves the user's current color palette in the Pal array. Few things are as annoying as a program which colors your screen with arcade-like hues, then neglects to restore your *original* screen colors.

Fix\_colors is a simple routine which may be used to save a user's palette at the start of a program, and restore it at the end. Use the statement Fix\_colors(True) to save the original palette, and Fix\_colors(False) to restore it.

We then GOSUB to In\_hi\_score and get the high score from the disk. If there isn't a HI\_SCORE.EGG file, we'll be routed to the procedure that creates one.

Now we take Scr\_mem down to Assign\_objects, where we change the data at the end of the program into objects.

The Get command stores a piece of the screen as a string which can be put back onscreen with the Put command. We'll use the Get command to store our objects in arrays. For example the Egg, Grenade and Knife are all stored in an array called Egg\$.

```
Egg$(0)=Egg
```

```
Egg$(1)=Splattered Egg
```

```
Egg$(2)=Hand Grenade
```

```
Egg$(3)=Knife
```

Assign\_objects first creates three erasers (by getting three pieces of blank screen) that erase the boy, egg and score respectively. Then *all 16* of the screen colors are set to the same color so when we begin Poking our data into screen memory, we won't see it happening. Once all the colors are the same, we begin pumping out data onto the screen and catching the objects in arrays until we've created the pictures we're going to use.

Here's how we get the three boy icons (walking left, walking right and middle) into their arrays: The outer loop "For Boys=1 to 3" says to create all three boys the same way. It is the inner loop "For X=0 to 30" that can be tricky. This loop gets the data from the Data statements and draws

the boys in the upper left corner of the screen, so we can capture them into arrays with the Get command.

## SCREEN MEMORY

Scr\_mem can also be considered the beginning of the first 16 pixels of screen memory. Unfortunately we need four color planes of 16 bits each to create the first 16 pixels on the screen, so the first 64 *bits* of screen memory are all dedicated to the first 16 *pixels* of screen memory. That is, for every 16 pixels across the screen, we have to Poke four words of data.

The loop names these four words Plane1, Plane2, Plane3 and Plane4. We then Poke them directly into the upper left corner of screen memory. But our boy is only one word wide, so we aren't interested in the second set of 16 pixels in screen memory. We are interested in the 16 pixels directly below the first 16, so we multiply X by 160—the number of bytes across the screen—to get the screen memory address where the second set of 16 pixels begins.

Once all of our objects are safely tucked away in arrays, we return to the beginning of the program and set up the eggs' characteristics for the first round. We'll run them through a loop that accesses the New\_egg subroutine using the command @New\_egg(Numegg).

An egg's characteristics include its X-Y position, speed of descent and whether it falls straight or at an angle. In fact, an egg can be "not an egg at all", but a hand grenade or knife. The procedure New\_egg always makes a new object an egg that drops straight down. Then it accesses the subroutine according to the level you're on: if you were on Level 5, the program would GOSUB to Procedure Lev5.

This would send you to Procedure Grenade to see if the egg should be turned into a grenade, and then the speed of the falling egg is set randomly. The characteristics of an egg are kept in arrays whose reference number is the *number* of that falling object.

Let's skip down to Procedure Main. First, let's make sure the falling object has characteristics with a GOSUB New\_egg(1). The While loop circles until we push a mouse button and the variable Play becomes false.

Now let's dispose of the three If/Endif segments of the procedure. The first simply checks to see if a button is pressed. Then it removes all the falling objects from the screen, makes the boy dance, and leaves Main. The second If Dance=True does a GOSUB to Dance. The If steady>4 statement puts a standing boy on the screen at the X position of your mouse after five cycles through Main.

## CAUTION: FALLING EGG

Procedure Egg\_drop sets the falling object to the first object, array number 0. Then a Repeat/Until loop is set up to cycle until all of the falling objects that are supposed to be on the screen have been drawn.

The first three lines after Repeat erase the old object, add its vertical offset (or speed) to its vertical position and

*continued on page 60*



# ST

# Graphics Tablets

---

*If you dislike "drawing with a bar of soap. . ."*

*Reviewed by* FRANK HAYES

The ST mouse is great for selecting an onscreen item by pointing and clicking. That, after all, is what it was designed for. Unfortunately, for other things the mouse simply doesn't work as well.

For instance, boot up your favorite ST drawing program and use the mouse to sign your name on the screen. If you're like most people, you'll find it's a little uncomfortable—and the result won't be a very good sample of your signature.

Many artists find that they have a similar problem when they try to use a mouse with computer drawing programs. As computer artist Eleanor Kent once commented, "Working with a mouse is like trying to draw with a bar of soap."

Fortunately for ST users there's an alternative. You can do your drawing with a stylus and a graphics tablet.

What's a graphics tablet? Put your hand on your ST's mouse. Now imagine that the mouse has suddenly transformed itself into a pen, and your mousepad has changed into a small drawing board. That's what a graphics tablet is like. To the ST, it appears to be a mouse, but you use it much more like a pencil and drawing board. Use that electronic pencil to sign your name and you'll probably produce an easily recognizable signature.

## ARTABLET

Two graphics tablets for the ST are the **ARTablet**, available from EI/O Products, and the **ProTablet ST** from Quantum. Like other peripherals such as modems, printers and scanners, these graphics tablets aren't built just for the ST. They can be connected to a wide range of other computers. But the ARTablet and ProTablet both come with driver software that's specifically designed to work on the

ST, making these tablets more productive and easier to use.

The ARTablet from EI/O Products uses a graphics tablet manufactured by Summa. It comes in various sizes. We reviewed the smallest and least expensive (\$395), which measures 9-1/2×13 inches physically. However, the actual drawing area is only about 6×9 inches—slightly larger than your ST's screen.

What's the ARTablet got to recommend it? Like a regular ST mouse, it has two "buttons" on the pen. When you would normally press the left mouse button, you simply press down a little harder with the stylus. That makes sense, since most ST drawing programs let you draw by pressing down the left button. The "right button" is a real button on the side of the stylus.

The graphics tablet itself sets up at an angle, like a drawing easel. The cords are long enough to give you plenty of flexibility when you're using the tablet and stylus. Best of all, the software is designed to let you use either the graphics tablet or the mouse. The graphics tablet has priority, but it's very easy and convenient to simply put down the stylus and use the mouse whenever you want to.

The disadvantages? The biggest one is the ARTablet's fairly small drawing area. It feels a little cramped when you're trying to do detailed work—though that's probably not such a problem with the larger sizes. The replaceable plastic tip in the stylus isn't as smooth as a metal tip would be for writing or drawing, and the stylus connects to the underside of the graphics tablet. As a result, the ARTablet can't lie flat on your desk, but must be angled like an easel. It's also too easy to accidentally hit the button on the stylus.

*continued on page 58*





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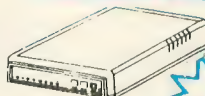
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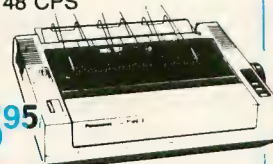
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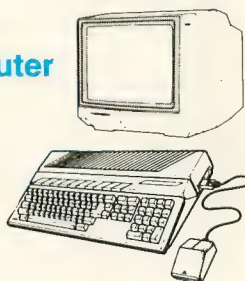
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## ST New Products

by GREGG PEARLMAN, *Antic Assistant Editor*

### MICHTRON QUINTS

**The Juggler** (\$49.95) is a switching program that lets you keep *seven* GEM applications in memory at the same time and access them via the "switchboard," making it easier to move from one to the other. The Juggler recognizes .PRG, .TOS and .TTP files.

Create pictures and complex animations with **GFA Artist** (\$79.95), save them in a special run-only file that allows up to 20,000 frames per film, then show them off to your friends. You can incorporate text into your pictures in a custom font (or one of the four provided ones), employ color cycling, even define your own fill pattern from part of your picture. With the Film Merger, you can merge into a *single* file several film files.

The Low-Res Static mode lets you use over 1,000 colors onscreen at once, and the Function Selection box integrates both low and medium resolution into one screen, combined with multiple palettes. The program is compatible with DEGAS and NEOchrome formats, and it requires 1Mb of RAM, TOS in ROM and a color monitor.

**Master CAD** (\$249.95) lets you create complete, exact 2-D and 3-D graphics and *project* 2-D designs onto 3-D images without having to waste time building data matrices or fighting with inadequate user interfaces. You can move, copy, rotate and flip any object horizontally or vertically, change their proportions and textures, and export or import them to and from other objects. You can observe objects from various viewpoints, external or internal, transparent or solid, or observe the objects in orthogonal, perspective, axonometric and oblique projections from any angle as well as spin them around any axis. Master CAD uses the screen as a "window" into a workspace with about 2,300 miles in each positive or negative access direction.

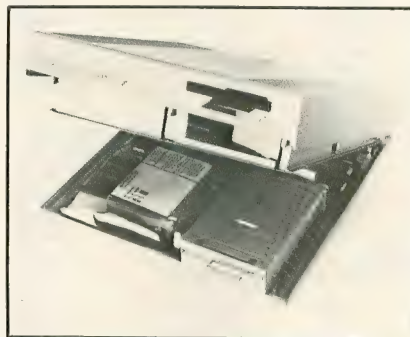
**PreSchool KidProgs** (\$39.95) stimulates the development of young children with KIDGRID+, a drawing program with 192 triangles that can be filled with one of 12 colors, KIDKEYS, which lets children choose one of 20 songs or create their own on the three-octave keyboard, and KIDBLOCKS, a multi-sided block puzzle to be unscrambled. PreSchool KidProgs requires a color monitor.

Microdeal's **Slaygon** (\$39.95) is the

most sophisticated military robot ever created. Controlled from within by one highly trained specialist (you), Slaygon possesses the strength of 100 men, the armor and weapons of a small tank—and your brain—as you attempt to destroy the Cybordynamics Laboratory before the finalization of a toxic virus designed to annoy all human life. You must circumvent security robots through five miles of hallways and 500 rooms, but you'll be aided by a cloaking device, short-range scanner and energy shields.

Michtron, 576 S. Telegraph, Pontiac, MI 48053. (313) 334-5700.

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### MEGADRIVE

Supra's **MegaDrive ST** hard disk connects to the ST's internal DMA port, leaving the external DMA port free for additional expansion. The MegaDrive allows full autobooting from the hard drive and comes with formatting software that lets you partition the hard disk into as many as 12 logical partitions. Power for the hard disk comes from the computer's own power supply.

20Mb: \$649; 40Mb: \$1,049. Supra Corp., 1133 Commercial Way, Albany, OR 97321. (503) 967-9075.

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### DARK CASTLE

In **Dark Castle**, you must connive and survive your way through 14 danger zones in your quest to vanquish the Black Knight. Dark Castle, a former Macintosh hit, features colorful animation and fascinating sound as you encounter trick after trick, test after test, trap after trap.

\$44.95. Three-Sixty Pacific, Inc., 2105 S. Bascom, Campbell, CA 95008. (408) 879-9144.

CIRCLE 186 ON READER SERVICE CARD

### TRANSPUTER PRINTER

CSS Laboratories' **transputer-based laser printer** incorporates Inmos Ltd.'s 15 million instructions per second (MIPS) T800 chip, which supports true parallel processing. It also incorporates a math coprocessor and 4K of memory directly into the microprocessor chip itself.

The printer can produce five to 20 pages per minute and can be upgraded to any laser printer engine for speeds of up to 50 pages per minute. All you have to do is buy the faster engine and an inexpensive "personality module." CSS expects to support up to 200 pages per minute by the third quarter of 1988.

\$2,990. CSS Laboratories, 1641 McGaw Avenue, Irvine, CA 92714. (714) 852-8161.

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### THREE FROM DATASOFT

You're Soviet submarine captain Marko Ramius, and you want to defect to the United States with your state-of-the-art sub, the Red October. In **Hunt for Red October** (\$49.95), based on the best-selling novel by Tom Clancy, your objective is to rendezvous with the U.S. Navy and fake a radiation leak, thus providing a reason to evacuate the 113-man crew. Then the Navy will smuggle the sub into a U.S. port. (You can't sail openly into U.S. waters. Under maritime law, the Soviets would simply reclaim the vessel.)

In **BattleDroidz** (\$34.95) you control one of three "droidz" in combat on a far-away planet. BattleDroidz includes 3-D scrolling action and 37 different landscapes to explore.

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IntellCreations (Datasoft), 19808 Nordhoff Place, Chatsworth, CA 91311. (818) 886-5922.

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# ST Toolbox

## *Make It Move, Payroll Master*

### MAKE IT MOVE

**Make It Move** is an impressive animation design tool, although it is *not* a drawing program. It lets you define sprite-like objects from NEOchrome or DEGAS .PI1 graphics files. You then can create fairly sophisticated animations with these images.

The package includes two disks containing the programs and a tutorial. Every screen illustration in the 29-page manual is almost too dark to recognize and the manual doesn't tell you how to recode animations on videotape. But it *is* nicely indexed, and the appendix contains short explanations of each command.

The first program you'll use is OBJECTS.PRG, which lets you select the sprite images for your graphics presentation, but you'll have to draw your artwork before using any of the Make It Move programs. You can load two graphics files into memory at once or use one of the file buffers as a clipboard. Once your artwork is in a file buffer, you select the images with a rectangular "rubber band box" pulled over the desired area of the image. Then you can name each image for reference.

You can change your picture file format easily with OBJECTS.PRG. You can load a NEO file and save it as a DEGAS .PI1 file. Another nice feature is the facility for creating zoom files of a single object. The object can zoom from a small speck to the full-scale image on the horizontal and/or vertical axes. Then you can incorporate the zoom files into your script.

Keep your background simple—it isn't always transparent in your animations. Also, your presentation will use the color palette of the full screen display of your script—which is not necessarily the same as a given object. After you've selected all the objects

you want, the file containing them must be stored in a special compressed format which is *not* the same as the DEGAS Elite compressed format.

Make It Move has very sophisticated scriptwriting facilities. You can display, hide and move your defined objects around the screen at given times, but there's no way to rotate objects other than page-flipping.

Make It Move excels in screen wipes and fades. The 13 options range from fading into a given color to digital dissolves in geometric patterns. These options let you create very professional-looking productions.

The SCRIPT.PRG program lets you view scripts in segments or in their entirety while constructing your presentation. A separate program, VIEWIT.PRG, lets you view a finished presentation. The VIEWIT.PRG is designed to be copied and distributed for the sole purpose of viewing scripts, but it is not public domain.—TOM CASTLE

\$59.95, color. Michtron, 576 S. Telegraph Road, Pontiac, MI 48053. (313) 334-5700.

CIRCLE 170 ON READER SERVICE CARD

### PAYROLL MASTER

I bought an Atari 520ST computer intending to phase out the Apple III that I use at work. My first step was to find a payroll program that does everything the \$395 Apple program can do. Royal's **Payroll Master** not only meets the challenge, but surpasses it. With a retail price of \$79.95 and the fact it runs on a stock 520ST, there's no reason not to use Payroll Master for any small to medium-sized

business payroll.

The program comes on an unprotected master disk—fantastic, since backup copies are essential. Payroll Master is easy enough that a 350-page manual isn't necessary. If you do have questions, assistance is only a phone call away, and a disk replacement/update service is offered for a minimal charge. The program itself is GEM-oriented, and payroll data is memory-resident (so execution is *fast*). Up to 400 employees can be entered.

After a few numbers and mouse clicks, you're done with an employee. You can process everyone, or only selected people. Payroll Master provides user-definable federal, state, city and local tax tables, which you can enter easily. This negates any tax update service (which my Apple needed at over \$100 annually). Also, you can add five user-defined deductions. The program supports weekly, biweekly, monthly and semimonthly pay periods, along with hourly, salary and base-plus-commission pay types. Vacation and sick leave are tracked for convenience.

Dragging with your mouse and clicking gives you a check "mask" of your own design so you can use virtually any preprinted paycheck form. Reports included are payroll registers, employee information and month/quarter/year-end registers. W-2s are printed at the end of the year also.

You can send reports to the printer or a disk file. The "dump report to disk" feature also lets you save the reports as text files. So if you lose your hard copies, you can always bring up the text file for any pay period.

I wish the payroll register was shorter (although I suppose it's possible that I might have missed an obscurely documented alternative for-

*continued on next page*



## ST TOOLBOX

continued from page 57

mat). I need a report with only the check number, employee and net amount, but so much other information is included on this report that it's several pages long. However, I soon learned to overcome this by printing my register report to disk and editing the file before I make a hardcopy.

I also wish that Payroll Master would automatically skip everyone

who has already had their paychecks printed for that pay period. I generally have to print checks for different parts of my 40-person staff at different times—and if I just select Print All, duplicate checks for the previously paid employees are printed. In addition, I would sometimes find it helpful if the program had a small ledger system for posting special situations to the accounts involved.

Still, Royal Software has a real win-

ner. Anyone looking to process payrolls efficiently, inexpensively and painlessly should look at this program—especially if you have just a single-sided drive and 512K of memory.—FRANK TOMECEK

\$79.95. Royal Software, 710 McKinley Street, Eugene, OR 97402. (503) 683-5361.

CIRCLE 171 ON READER SERVICE CARD

## ST GRAPHICS TABLETS

continued from page 53

There are no switches or calibrations to set for the ARTablet—you just plug it into your ST and begin using it. All in all, it's a convenient and useful way to draw.

### PROTABLET ST

Quantum's \$395 ProTablet ST is manufactured by Mitsubishi. This graphics tablet is much larger than the ARTablet we tested—11×17-1/2 inches, with an 8×12 inch drawing area. That's almost twice the drawing area and a big advantage. The ProTablet has a number of other attractive features—but with that power comes much more complexity.

For example, the ProTablet's metal-tipped stylus works with a smooth, light touch and you can replace the metal tip with a ball-point pen tip if you like. But there's no second button on the stylus—you can only click by pressing harder with the stylus. Supposedly you can click the right mouse button by clicking with the stylus in one of the corners of the tablet, but it's difficult to use correctly.

You can also scale the drawing area for your particular work, using only a portion of the tablet's drawing surface for the whole ST screen. This makes it much easier to trace a drawing into DEGAS or into a CAD program. It's very easy to reset the scaling. Too easy, in fact—the scaling seemed to reset itself even when we didn't want it to.

Many of the ProTablet's options are controlled by 10 DIP switches on the underside of the tablet, which are supposed to be set correctly for the ST when you receive the tablet. Ours weren't, and we had a difficult time getting the switch settings right. If they're wrong, you may get no results at all.

But there are some major advantages to the ProTablet too. All the connections are made to the rear of the tablet rather than the underside, so the tablet can either sit flat or set angled as an easel. The power-on LED makes it easy to tell whether everything's connected properly. And though you can't use the mouse and tablet at the same time, you can easily switch between them using the software, which comes in the form of a Desk Accessory program.

One of the best features of the ProTablet is the optional drawing puck. The puck plugs into the ProTablet tablet, replacing the stylus. It looks something like a mouse with crosshairs, and it allows very precise tracing. That's extremely useful when you're trying to copy a sketch into a drawing or CADD program. The puck has felt pads on the underside, so it glides very smoothly across the surface of the graphics tablet. There are also four buttons on the puck, solving the "missing button" problem. Unfortunately, the software version we tested only recognized one of the buttons.

The puck exemplified the ProTablet. It was wonderful, but I wished the software was easier to use and made better use of the hardware.

Fortunately, both Quantum and EI/O Products have promised to improve and update their software. If you only need your mouse for choosing items from drop-down menus, you certainly don't need a graphics tablet. But either the ProTablet ST or the ARTablet will make your life much easier if you're an artist, drafter or other graphics professional who's tired of drawing with a bar of soap.■

### ARTABLET

\$395, 6×9 inches

EI/O Products

1559 Rockville Pike

Rockville, MD 20852

(301) 869-5984

CIRCLE 290 ON READER SERVICE CARD

### PROTABLET ST

\$395, 12×8 inches

Quantum Microsystems Inc.

P.O. Box 179

Liverpool, NY 13088

(315) 451-7747

CIRCLE 291 ON READER SERVICE CARD

## Atari in your closet?

*Convert it into quick cash.*

*Antic classified ads sell  
your unused Atari equipment fast!*



# WordPerfect ST

*Proving why it's the IBM PC bestseller*

*Reviewed By GREGG PEARLMAN, Antic Assistant Editor*

**W**ordPerfect (\$395) is now by far the most powerful and complete word processor available for the ST. And we're pleased to report that the latest release (January 29) seems to have cleared up all the bugs from earlier shipments.

WordPerfect, the longtime best-selling word processor for IBM PCs and compatibles, is known for being crammed with high-powered features—which require an arsenal of commands to master them all. Even WordPerfect's ST quick-reference card runs five text pages. However, you can operate WordPerfect either with keyboard commands or by clicking on menu selections with your mouse.

Throughout 1986-87, WordPerfect Corp. of Utah demonstrated their commitment to the Atari market by showing off beta versions of their ST adaptation at Atari Fairs. This company has earned an enviable reputation for customer service. They constantly upgrade and enhance their main product, instead of spreading themselves thin with a lot of different software like so many other publishers.

When significant bugs turned up in the earlier releases of the ST conversion, WordPerfect Corp. left no doubt that it would keep on providing their customers with free upgrades until the debugging was successfully completed. I also personally found that the customer service people at WordPerfect's toll-free 800 number live up to their reputation for being extremely helpful and friendly. They'll go the extra yard to solve your problem.

The WordPerfect software consists of six *non-protected* disks. This means you can back up each disk and customize several different versions of the program. And you can copy them to a hard disk for vastly increased convenience and speed. Of course, WordPerfect Corp. doesn't need to worry too much about piracy: WordPerfect is almost unusable without its manual of over 600 pages!

## GLOBAL REPLACE

You'd think that such a huge manual would provide adequate documentation about each feature. But unfortunately that's not the case. Too often, you'll read and re-read an instruction until the words fall off the page and you *still* won't know exactly what to do. For example, later on in this review I'll explain the tortuous process I needed to go through before figuring out how to build a personal dictionary and add it to the built-in 115,000-word main dictionary.

In the normal course of my word processing, I often perform search-and-replace functions. Perhaps I down-

loaded or Linklined a document and must excise all unwanted carriage returns, or I must replace all five-space tabs with paragraph symbols.

To test WordPerfect, I loaded a 2,000-word document that had been printed to disk. Onscreen, most lines started 10 spaces from the left-hand margin. The newest release took 11 seconds for a global delete, replacing nine spaces with "nothing." The same process on a 20,000-word document took 97 seconds. This is an impressive improvement over our older version, which needed one minute for 2,000 words and nine minutes for 20,000. Now if only the marker on the slider bar would descend as the search progressed. . .

It's easy to scroll up or down with the arrow keys, but if you move the slider-bar cursor with the mouse, the screen will take a few seconds (depending on file size) to reposition. You can have as many as five columns of text onscreen.

I was unable to find a way to search-and-replace symbols for turning off boldface, italics, etc. Many other word processors will let you do this. I alerted WordPerfect Corp. about this difficulty—which doesn't exist in the IBM version—and it should be taken care of in the next upgrade. Part of the problem seems to be that WordPerfect ST is virtually a WYSIWYG program. While most other word processors have a Print Preview mode, in WordPerfect ST you're *always* in Print Preview.

There is a "reveal codes" option that shows the text as well as carriage returns, control codes and the cursor (each taking up at least two spaces). You must highlight a block of text in order to boldface or italicize it.

## SPELL CHECKING

Spell-checkers can be fascinating. ("How do they know?") And the scope of the WordPerfect spell-checker is truly astounding.

The 115,000-word dictionary is divided into Common and Main dictionaries. When WordPerfect encounters a suspicious word during a spell-check, it first checks the Common dictionary. It switches to the Main dictionary only after coming up empty. If the Main dictionary provides no answers, it displays a couple of dozen similarly spelled words to choose from. Just click on the appropriate spelling to replace the document's version. You can even look up a word phonetically.

Spell-checking a document is not a particularly fast

*continued on next page*



## WORDPERFECT ST

*continued from previous page*

process—sometimes you have to click (or press a key) two or three times for the program to accept, skip or let you edit a word. Updating a dictionary takes about five minutes of disk access, even on a hard disk. It's probably a good idea to place the dictionary files on a RAMdisk, if you have one. In fact, it's fun watching the spell-checker use the RAMdisk dictionary to zip through your document.

## ADDING WORDS

New user-approved words are saved to a supplementary dictionary which seems to fill up fast. I had all kinds of trouble checking documents when my supplementary dictionary had reached a scant 4K. The answer, which is not documented, is to add the extra words to the main dictionary after the supplementary dictionary fills up about halfway.

This you must do via the Speller Utility disk—also a wise thing to copy to your hard disk—which lets you create an auxiliary dictionary, add or delete words in the Main or Common dictionary either by typing them in or by loading another dictionary file, optimize (compact) a dictionary you've created, display words in the Common list, check which dictionary contains a word, and look up a word in the standard way or phonetically. When it encounters the same word twice in a row (word word), the spell-checker will ask if you want to skip or accept the

## CRAZY CHICKEN BARRAGE

*continued from page 52*

print the object. Once the object is Put on the screen, we wait for the next vertical blank with the command Vsync, then add the object's horizontal movement to the X position to prepare for the next movement.

The rest of the routine is a series of nested If statements that check to see what happens to the object we just drew.

The Difficulty procedure takes care of all bookkeeping for the program. It changes the levels, keeps track of the number of fallen eggs and awards bonuses. The first thing it does is Decrement Eggs\_available, which is the number of objects that must fall before we add another falling object.

The Walk procedure makes sure that the X position of your mouse is in bounds and that you have moved the mouse. If so, the procedure then checks to see which direction the mouse is going in—whether the new position is larger or smaller than the proceeding position.

If the position is larger, we set the variable Obj to 3, and if it's smaller, the variable is set to 2. The left-walking boy is Obj\$(3) and the right-walking boy is Obj\$(2). So by replacing the number with the variable, we automatically switch to the corrected picture. ■

*Paul Pratt and Stephen Everman published Maze Master and Pascal Towers in the March 1988 Antic and BASIC Concentration in April 1988.*

FOR MORE ARTICLES LIKE THIS, CIRCLE 195 ON READER SERVICE CARD.

*Listing on page 72*

double word.

WordPerfect has a fine Thesaurus function. Choosing the Thesaurus program brings up a three-column window: the first column shows the word under the cursor in the text, along with several synonyms to choose from. Clicking on one of those words brings up a second column showing its synonyms. Clicking on one of those brings up the third window.

You can replace a word with one you've chosen, look up a word, clear a column, or view your document. Sometimes, however, you'll find that the word you're looking up isn't a "headword"—which simply means that it *can't* be looked up in the thesaurus. Each headword is classified as an adjective, noun or verb.

## SETUP AND PRINTING

The setup program lets you set your default drive(s), telling WordPerfect where to find not only your main text files, but your dictionary and thesaurus files as well. The program currently has settings for 259 printers, and you can store drivers for six at a time.

It may be a minute or so before the printer actually starts doing its stuff, because of all the disk access required. I had trouble getting an accurate printout with Antic's Epson RX-80 compatible Panasonic KX-P1080i printer (reviewed in the April, 1988 issue), whether I used the program's built-in Panasonic driver or the Epson FX/RX driver.

It's easy to convert files to WordPerfect format from ST Writer, 1st Word and Word Writer formats. Just run WordPerfect's conversion program, specify the file type and furnish filenames. Conversion of a 100,000-byte ST Writer file took one minute, 38 seconds on a floppy disk, 14.8 seconds on a hard disk and a quick 4.3 seconds on a RAMdisk.

Oddly enough, our newest (January 29) WordPerfect release no longer converts ST Writer files. However, WordPerfect Corp. says a fix is on the way. Meanwhile you should have no trouble using the conversion program from an earlier (January 8) release.

## SUMMING UP

If you want to own the most power-packed word processor available for the ST today, and can live with the relative complexity needed for harnessing this power, WordPerfect is what you've been waiting for. The company's excellent track record for supporting its software is also a significant factor. WordPerfect is widely available at substantial discounts below its \$395 list price. And for full-time students or educators who can verify their status, there's a special price of only \$99. ■

## WORDPERFECT

WordPerfect Corp.  
288 West Center Street  
Orem, Utah 84057  
(800) 321-4566  
\$395, color or monochrome

CIRCLE 173 ON READER SERVICE CARD



# New ST Entertainments

*From dungeons to outer space*

## ROADWAR EUROPA

I loved the original version of this game and I love this sequel. Despite a less than original premise (remember Mad Max?), **Roadwar Europa** puts you in command of a roving band of vehicular warriors, fighting for control of radiation-ridden roadways of the future.

On this outing, the scene is Europe and its world-threatening terrorists. It seems that a rather ugly faction has planted five nuclear devices in major European cities. The detonation of the first one is just to let you know they're serious. Unfortunately, what you don't know is the location of the other four. The object of the game is to defuse these bombs and save the world. Feel up to it?

What makes this complex game such a joy to play are its logical, simple design and ease of use. Start out by allocating vehicle, manpower, and supply points to create a gang.

Game play follows a simple and hypnotic pattern. Move, search, fight—it couldn't be easier. What isn't easy is the strategy needed to complete the game. What kind of vehicle do I need? Should I risk another fight? Is your doctor healing your men, or merely an extra mouth to feed? These are only a few of the problems awaiting you.

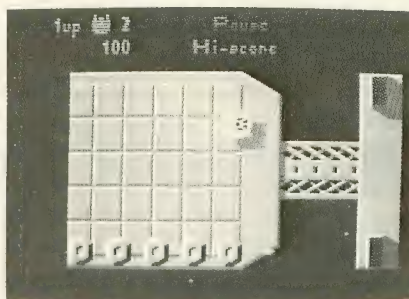
Simple mouse/menu and alternative keyboard commands allow you to learn and play quickly. You'll soon graduate to the highly complex tactical battle mode, in which you control all aspects of your Roadwar, such as vehicle position, aim, movement, and ramming and boarding enemy vehicles.

A very attractive and well designed, high-res screen makes the mayhem easy on the eyes, while a generous manual also manages to ease you into

this complex game. And a disk that's not copy protected makes sure you're the only one to blame for a defective disk. — STEVE PANAK

\$44.95, color only. Strategic Simulations Inc., 1046 N. Rengstorff Avenue, Mountain View, CA 94043. (415) 964-1353.

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## URIDIUM, XEVIOUS

Space shoot-em-ups aren't news anymore and they aren't exactly my cup of tea either, so I was surprised to enjoy Mindscape's **Uridium** (\$39.95) so much. Detailed and life-like graphics are a real help and an easy joystick system is also a plus.

The playing style isn't that much different from Zaxxon except that scrolling goes straight across the screen instead of from corner to corner. The object of the game is also quite different. An enemy fleet of 15 Super Dreadnoughts is stealing minerals from 15 different planets in your galactic sector. You'll first have to knock out the fighters that protect the Dreadnought, while avoiding the homing mines that come from the ship.

To do that, your ship is equipped with an unlimited supply of phaser power and some pretty flashy maneuvering capabilities. When all the Dreadnought's defenses have been eliminated, you can land on the ship

and destroy it.

For those weary of games with 100-page manuals, for those who just want to load the game and take off, Mindscape's **Xevious** (\$29.95) is probably right up your alley. There are only 126 words in the manual about the ST version of the game.

Xevious is a vertically scrolling combat game, pitting you and your aircraft against a mighty arsenal of land and air forces from an enemy about which you know very little. The joystick controls sideways and up/down movement in a strictly 2-dimensional format. The button is used to fire an unlimited supply of bombs. The easy way to play is just leave the button depressed constantly for a continuous barrage of bombs. But a quick tapping of the button will actually produce more bombs at a faster rate. High scores are saved to disk. — RICK TEVERBAUGH

Color only. Mindscape, 3444 Dundee Road, Northbrook, IL 60062. (312) 480-7667.

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## DUNGEON MASTER

Occasionally a game appears that is so revolutionary it immediately pulls ahead of the competition and sets standards for judging future releases. Zork and Flight Simulator II come to mind. Now there's **Dungeon Master**, a graphic role-playing fantasy written expressly for the ST and one of the few games taking complete advantage of 16-bit technology.

Dungeon Master is the first game where skeletons, dragons, mummies, et al. wander freely. Sometimes you can see your adversaries first, but once they see you, they'll stay hot on

*continued on next page*



your trail.

Dungeon Master's graphics are spectacular. Your main screen is a first-person view of the dungeon that scrolls by as you move. The detail is amazing, as fountains, chipped stones, and messages carved into them—many of them clues—add to the realism of the game. And the ST interface is outstanding. Everything is mouse controlled, from movement to casting spells. But what's amazing—more than hot animation, more than the interface—is the *sound*. Dungeon Master is almost worth buying for the sound-effects alone. All sounds are digitized, from the metallic clank of a door closing to the sound of an axe being swung through the air down to the comical "oof!"

Dungeon Master is more puzzle-oriented than its ancestors. In fact, there is hardly any combat in the first two levels at all. Instead, the game teaches you to be observant. The many hidden switches and panels in the walls may open a secret panel.

The only thing commonplace about Dungeon Master is the storyline where once again, an Evil Wizard has taken over control of the world. You must assemble a party of four adventurers (Fighter, Ninja, Wizard or Priest) to explore a 15-level dungeon.

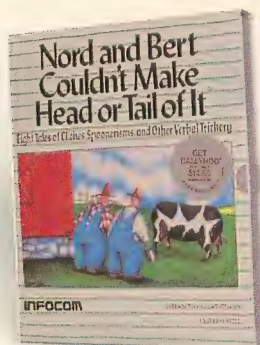
Party members develop not by gaining "experience points" but by practicing their skills, as in real life. This gives character growth a more organic feel than other games of the genre. A hint book is on the way, and there's talk of Dungeon Master II—apparently there are 15 levels that didn't make it into the game. In the meantime, buy this game. It's one of the best games ever written for *any* computer.—HARVEY BERNSTEIN

\$39.95. FTL Games, P.O. Box 11248, San Diego, CA 92111. (619) 453-5711.

CIRCLE 170 ON READER SERVICE CARD

## NORD AND BERT

**Nord and Bert Couldn't Make Head Or Tail Of It** is the long-winded title to the latest offering from Infocom, the reigning masters of interactive text adventures. To put it



mildly, Nord and Bert is a major departure from Infocom's previous adventures. Success in this game relies on solving word games, having total recall of clichés and believing firmly that the pun is mightier than the sword.

The underlying thread in Nord and Bert is that a verbal disaster has hit the town of Punster. Normal speech has taken on magical qualities, causing a variety of problems that you have been called in to correct. There are eight separate hot-spots, each an independent mini-adventure, that need to be solved to save the day. Each site requires a different form of verbal magic to make progress. For example, calling a root a *route* could open up a trail through an impassable forest. In another case finding the most laps would actually reveal lost maps.

Game play is also different in that all possible directions are posted on the screen. No need for mapping, the puzzles are reserved for word games. There's also an online hint feature—a necessity for this game, given some of its more obscure references. The starting point for each scenario is to determine what type of word game is being played. These are consistent—one scenario is all homonyms, another is spoonerisms, etc., with no overlapping.

Novelty aside, I cannot recommend this game. Its biggest flaw is inconsistency of play from one scenario to another. The puzzles are fairly trivial, compared to standard adventure games, but the word play ranges from easy to difficult. I love puzzles but when success rests on recalling every cliché in the book there is little challenge and less interest. The element of fairness is gone: either you know

it or you don't, with no hope of finding a logical solution. I give Infocom an A for originality but will spend my money on something else.—JIM PIERSON-PERRY

\$39.95. Infocom, 125 CambridgePark Drive, Cambridge, MA 02140. (617) 576-3190.

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## F-15 STRIKE EAGLE

In its original incarnation on the 8-bit Atari, **F-15 Strike Eagle** solidly established Microprose as the leading developer of flight combat simulation software. Now converted to ST format, it's essentially the same.

However, fans of the previous version will appreciate the enhancements designed to take advantage of 16-bit technology. The wire frame designs of the old targets have been replaced by true-to-life graphics. Planes, airfields, SAM sites, etc. all closely resemble their real-life counterparts. The ST version plays much *faster* too, adding to the excitement. One new element not found previously is the ability to save a pilot's performance to disk.

The game places you in the cockpit of an F-15 air/ground attack fighter. With the assistance of a sophisticated heads-up display (HUD), three major air-to-air weapons systems, (guns, medium and short range missiles), and computerized intelligence displays, you attempt to complete any of seven missions (based on actual military incidents) in places such as Libya, Egypt, Syria and Hanoi.

As is common with Microprose releases, the documentation is superb. The first part of the manual gives an overview of the game and controls, while an extensive second section deals with advanced defensive flight techniques, aerodynamics, etc. The manual also contains the authentication codes you need to get off the ground—sugar-coated copy protection.—HARVEY BERNSTEIN

\$39.95. Microprose, 180 Lakefront Drive, Hunt Valley, MD 21030. (301) 771-1151.

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**\$5.95**

All this software without typing—yours for only \$5.95. Your double-sided Antic Monthly Disk has every type-in program from this issue, plus this month's Super Disk Bonus and other extras. Shipment within 24 hours is guaranteed when you phone your MasterCard or Visa order to the Disk Desk: (800) 234-7001. Now Toll-Free!

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**RECALL** .....70

## ST RESOURCE

► **WATCH OUT FOR EGGS, GRENADES AND KNIVES!**

**CRAZY CHICKEN BARRAGE** .....72

**TYPING SPECIAL ATARI CHARACTERS** .....64

**HOW TO USE TYPO II** .....65

**DISK SUBSCRIBERS:** Programs for 8-bit Atari computers can be used immediately. Just follow instructions in the accompanying magazine articles. ST Owners: See monthly disk's ST Help File for instructions on how to transfer programs to 3-1/2 inch disk.

**DOS COMPATIBILITY:** All 8-bit programs published by Antic are tested to work with Atari Disk Operating System (DOS) 2.0S and 2.5—not with the incompatible DOS 3.0. DOS 2.0S is available on each Antic Monthly Disk. Copy the DOS.SYS and DUP.SYS files.

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# TYPING SPECIAL ATARI CHARACTERS

Antic printed program listings leave a small space between each Atari Special Character for easier reading. Immediately below you will see the way Antic prints all the standard Atari letters and numbers, in upper and lower case, in normal and inverse video.

```

ABCDEF GHIJ KLMNOPQRSTU VWXYZ
abcde fghi jklmnopqrstu vwxyz
0123456789      0123456789
  
```

The Atari Special Characters and the keys you must type in order to get them are shown in the two boxes below.

NORMAL VIDEO				INVERSE VIDEO			
FOR THIS	TYPE THIS	FOR THIS	TYPE THIS	FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
CTRL ,		CTRL S		CTRL X		CTRL X	
CTRL A		CTRL T		CTRL Y		CTRL Y	
CTRL B		CTRL U		CTRL Z		CTRL Z	
CTRL C		CTRL V		ESC		ESC	
CTRL D		CTRL W		SHIFT DELETE		SHIFT DELETE	
CTRL E		CTRL X		ESC SHIFT INSERT		ESC SHIFT INSERT	
CTRL F		CTRL Y		ESC CTRL TAB		ESC CTRL TAB	
CTRL G		CTRL Z		ESC SHIFT TAB		ESC SHIFT TAB	
CTRL H		ESC ESC		CTRL .		CTRL .	
CTRL I		ESC CTRL -		CTRL ;		CTRL ;	
CTRL J		ESC CTRL =		SHIFT =		SHIFT =	
CTRL K		ESC CTRL +		ESC CTRL 2		ESC CTRL 2	
CTRL L		ESC CTRL *		ESC CTRL DELETE		ESC CTRL DELETE	
CTRL M		CTRL .		ESC CTRL INSERT		ESC CTRL INSERT	
CTRL N		CTRL ;					
CTRL O		SHIFT =					
CTRL P		ESC SHIFT CLEAR					
CTRL Q		ESC DELETE					
CTRL R		ESC TAB					

Whenever the CONTROL key (CTRL on the 400/800) or SHIFT key is used, *bold it down* while you press the next key. Whenever the ESC key is pressed, *release* it before you type the next key.

Turn on inverse video by pressing the Reverse Video Mode Key . Turn it off by pressing it a second time. (On the 400/800, use the Atari Logo Key instead.)

Among the most common program typing mistakes are switching certain capital letters with their lower-case counterparts—you need to look especially carefully at P, X, O and 0 (zero).

Some of Atari Special Characters are not easy to tell apart from standard alpha-numeric characters. Usually the Special Characters will be boxed. Compare the two sets of characters below:

SPECIAL		STANDARD	
	CTRL F		/
	CTRL G		SHIFT +
	CTRL N		SHIFT -
	CTRL R		-
	CTRL S		+



# HOW TO USE TYPO II (8-BIT)

TYPO II automatically proofreads *Antic*'s type-in BASIC listings for 8-bit Atari computers. It finds the exact line where you made a program typing mistake.


Type in TYPO II and SAVE a copy to disk or cassette. Now type GOTO 32000. When you see the instruction on the screen, type in a single program line **without the two-letter TYPO II code** at the left of the line number. Press the [RETURN] key.

Your line will reappear at the bottom of the screen with a two-letter TYPO II code on the left. If this code is not exactly the same as the line code printed in the magazine, you mistyped something in that line.

To call back any line previously typed, type an asterisk [\*] followed (without in-between spaces) by the line number, then press [RETURN]. When the complete line appears at the top of the screen, press [RETURN] again. This is also the way you use TYPO II to proofread itself.

To LIST your program, press [BREAK] and type LIST. To return to TYPO II, type GOTO 32000.

To remove TYPO II from your program, type LIST "D:FILENAME",0,31999 [RETURN] (Cassette owners LIST "C:"). Type NEW, then ENTER "D:FILENAME" [RETURN] (Cassette—ENTER "C:"). Your program is now in memory without TYPO II and you can SAVE or LIST it to disk or cassette.

 Don't type the  
TYPO II Codes!

```
WM 32000 REM TYPO II BY ANDY BARTON
UM 32010 REM VER. 1.0 FOR ANTIC MAGAZINE
HS 32020 CLR :DIM LINES$(120):CLOSE #2:CLO
SE #3
BN 32030 OPEN #2,4,0,"E":OPEN #3,5,0,"E"
YC 32040 ? "K":POSITION 11,1:? "TYPE II CODES"

EM 32050 TRAP 32040:POSITION 2,3:? "Type
in a program line"
HS 32060 POSITION 1,4:? " ":INPUT #2;LINE
$:IF LINES$="" THEN POSITION 2,4:LIST B
:GOTO 32060
XH 32070 IF LINES$(1,1)="*" THEN B=VAL(LIN
E$(2,LEN(LINES$)):POSITION 2,4:LIST B:
GOTO 32060
TH 32080 POSITION 2,10:? "CONT"
MF 32090 B=VAL(LINES$:POSITION 1,3:? " "
```


```
NY 32100 POKE 842,13:STOP
CN 32110 POKE 842,12
ET 32120 ? "K":POSITION 11,1:? "TYPE II CODES"
CE 32130 C=0:ANS=C
QR 32140 POSITION 2,16:INPUT #3;LINES$:IF
LINES$="" THEN ? "LINE ";B;" DELETED":G
OTO 32050
UU 32150 FOR D=1 TO LEN(LINES$):C=C+1:ANS=
ANS+(C*ASC(LINES$(D,D))):NEXT D
WJ 32160 CODE=INT(ANS/676)
JW 32170 CODE=ANS-(CODE*676)
EH 32180 HCODE=INT(CODE/26)
BH 32190 LCODE=CODE-(HCODE*26)+65
HB 32200 HCODE=HCODE+65
IE 32210 POSITION 0,16:? CHR$(HCODE);CHR$
(LCODE)
UG 32220 POSITION 2,13:? "If CODE does no
t match Press [RETURN] and edit line a
bove.":GOTO 32050
```

## part II: mixed numbers sorting routine

# SUPER SORTERS

Article on page 34

## LISTING 1

 Don't type the  
TYPO II Codes!

```
UL 1000 REM NUMERIC SORT DEMO
WI 1010 REM BY KEVIN PECK
VF 1020 REM (c)1988, ANTIC PUBLISHING
XT 1080 GOSUB 2000
SY 1130 DIM D$(560),L$(7),F$(6),I$(8),T$(7)
FZ 1140 D$="" :D$(560)="" :D$(2)=D$
PD 1150 FOR I=1 TO 20:READ F$,L$,I$,T$
ZB 1160 P$=(I-1)*28+1
DF 1170 D$(P$,P$+LEN(L$))=L$
QC 1180 D$(P$+7,P$+7+LEN(F$))=F$
OR 1190 D$(P$+13,P$+13+LEN(I$))=I$
KL 1200 D$(P$+21,P$+21+LEN(T$))=T$
EW 1210 NEXT I
IX 1220 POKE 710,145:POKE 82,2
IE 1230 GOSUB 1470:POSITION 8,22:? "Origina
l, Unsorted data":GOSUB 1500
YH 1240 A=USR(ADR(SN$),ADR(D$),ADR(D$)+
LEN(D$),8,13,28,0)
YX 1250 GOSUB 1470:POSITION 6,22:? "Sorte
d Ascending by Income":GOSUB 1500
WU 1260 A=USR(ADR(SN$),ADR(D$),ADR(D$)+
LEN(D$),7,21,28,1)
DY 1270 GOSUB 1470:POSITION 5,22:? "Sorte
d Descending by Tax Owed":GOSUB 1500
```

```
IY 1280 REM
GW 1290 REM SECOND EXAMPLE:
XF 1310 ? "K":POSITION 10,10:? "Reading D
ATA"
AX 1320 D$="" :D$(220)="" :D$(2)=D$
LR 1330 FOR I=1 TO 20:READ I$,L$
UC 1340 P$=(I-1)*11+1
XY 1350 D$(P$,P$+LEN(I$))=I$
DL 1360 D$(P$+8,P$+8+LEN(L$))=L$
JX 1370 NEXT I:GOSUB 1530:POSITION 8,22:?
"Original Unsorted Data":GOSUB 1500
JA 1380 REM
CG 1390 REM CALL ONCE FOR EACH LANGUAGE
WT 1410 I$="ACTION":GOSUB 1560
UC 1420 I$="BASIC":GOSUB 1560
XA 1430 I$="ASSEMBLY":GOSUB 1560
DG 1440 I$="LOGO":GOSUB 1560:GOSUB 1530
KK 1450 POSITION 2,22:? "Data sorted Asce
nding by BYTE size":GOSUB 1500
ZT 1460 GRAPHICS 0:POKE 710,145:END
RZ 1470 ? "K":POSITION 2,0:? "LAST ME
SSI INCOME TAXES"
NY 1480 FOR I=1 TO 20:P$=(I-1)*28+1
AU 1490 ? D$(P$,P$+6);" ";D$(P$+7,P$+12
continued on next page
```







new challenges from an old favorite

# PERFECTED PONG

Article on page 30

## LISTING 1

Don't type the  
TYPO II Codes!

```
QU 10 REM PERFECTED PONG
PO 20 REM BY BOB AYIK
GD 30 REM (c) 1985, 1988 ANTIC PUBLISHING
EV 40 REM (LINES 10-250 MAY BE USED WITH
    OTHER BASIC LOADERS IN THIS ISSUE.)
IJ 50 REM CHANGE LINE 70 AS NECESSARY.)
PR 60 DIM FNS(20),TEMP$(20),AR$(93):DPL=P
    EEK(10592):POKE 10592,255
IG 70 FNS$="D:PONG.EXE":REM THIS IS THE NA
    ME OF THE DISK FILE TO BE CREATED
RD 80 ? "Disk or Cassette?":POKE 764,25
    5
PY 90 IF NOT (PEEK(764)=18 OR PEEK(764)=
    58) THEN 90
TH 100 IF PEEK(764)=18 THEN FNS$="C:"
UB 110 POKE 764,255:GRAPHICS 0:? "      AN
    TIC'S GENERIC BASIC LOADER"
MY 120 ? "BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :? "Creating ";FNS$:? "...plea
    se stand by.."
LW 150 RESTORE :READ LN:LN=LN:DIM AS(LN):
    C=1
BQ 160 AR$="":READ AR$
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
    2,255
DM 180 LM=LN-1:POSITION 10,10:? "(Countdo
    wn...T-";INT(LM/10);")
BK 190 AS(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
    1:NEXT X:GOTO 160
MM 200 IF PEEK(195)=5 THEN ? :? :? "GTOO
    MANY DATA LINES!":? "CANNOT CREATE FIL
    E!":END
CM 210 IF C<LN+1 THEN ? :? "GTOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
UQ 220 IF FNS$="C:" THEN ? :? "Prepare ca
    ssette, press RETURN"
AR 230 OPEN #1,0,0,FNS$
PU 240 POKE 766,1:? #1;AS$:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0:? "REINITIALIZED"
    ""
IJ 1000 DATA 3630
FJ 1010 DATA 2552550000802510800320220831
    62000189141089157000048232208247169117
    141001002169000141000002162
XL 1020 DATA 0001690001570001281570001291
    57000130157000131157000132232208238169
    012141197002141219002169000
DH 1030 DATA 1411980021412000021412160871
    60255200185194089153052128192014208245
    160255200185209089153202130
NR 1040 DATA 1920102082451602552001850320
    90153078132192035208245160255200185220
    089153126132192019208245160
MW 1050 DATA 2552001852400891530921311920
    092082451602552001852500089153134131192
    005208245160255200185000090
UA 1060 DATA 1531211311920102082451602552
    00185011090153164131192005208245160255
    200185017090153147131192008
MD 1070 DATA 2082451602552001850260901531
    89131192005208245162018032146082162009
    160000032125082162018032161
JM 1080 DATA 0821620091600010321250821690
    00141211087032176082160000169000153000
    051153000052153000053153000
GR 1090 DATA 0541530000552002082381411930
    87252080247081160255200185138090153074
    052192022208245160255200185
VI 1100 DATA 161090153074053192022082451
    6025520018518409015307405419202208245
    160255200185209090153074055
UL 1110 DATA 1920222082451602551690282001
    53074051192016208248160019200153074051
    192022208248162000169132160
UD 1120 DATA 085157234090024105002232240
    12240008136208242024105006208235169000
    157234090169000141048002169
WG 1130 DATA 0481410490021731900871410470
```

```
PD 02173216087141198002169007162082160204
    032092228169192141014212169
1140 DATA 0171411110021690991410012081
    69121141002208169143141003208169077141
    000208169001141008208141009
YM 1150 DATA 2081410102081410112081690481
    41007212169085141012208169172141005208
    169062141047002169003141029
RW 1160 DATA 2081692551412520021692511330
    20169008141031208173252002201255240038
    201028208014173211087073081
KM 1170 DATA 1412110870321760820762540811
    73216087024105016141216087248081243082
    141198002141200002169255141
QC 1180 DATA 2520021730312080410022080372
    38192089173192089201006208005169000141
    192089032109082142190087032
IR 1190 DATA 1460821731900870741701600000
    32125082032195082173031208041004208037
    238193089173193089201006208
HR 1200 DATA 0051690001411930890321090821
    42190087032161082173190087074170160001
    032125082032195082173031208
NY 1210 DATA 0410012400030762090811690641
    41014212076219083162000141190087024109
    190087232224005208247170096
CZ 1220 DATA 1891040901532230872321891040
    90153225087232189104090153221087096160
    255200189068090153174131232
LN 1230 DATA 1920052082440961602552001890
    68090153204131232192005208244096010010
    010170160255200189122090153
UY 1240 DATA 2281312321920072082440961692
    2513302016502080252096173193087208063
    160000185234090056233002201
UK 1250 DATA 0181760021692521412330901690
    16205233090240007024105016208246240012
    206233090206244082239083233
WN 1260 DATA 0902062330902062330901732330
    90153234090200192012208204169000133077
    169005141193087206193087076
UH 1270 DATA 0982281620961690120320862281
    62096169003157066003169087157069003169
    182157068003169012157074003
IS 1280 DATA 1690051570750030320862281730
    47002141190087169000141047002169000160
    003032183083169079133085169
PE 1290 DATA 0001330861690031330841620961
    69017157066003169003141251002032086228
    169000160045032183083169079
NQ 1300 DATA 1330851690001330861690451330
    84162096169017157066003169003141251002
    032086228169039141189087169
DF 1310 DATA 0041411880871731890871721800
    87032183083238188087238188087173188087
    201046208234173048002141186
QK 1320 DATA 0871730490021411870870961330
    85152133084162096169009157066003169087
    157069003169185157066003169
ZU 1330 DATA 0011570720031690001570730030
    32086228096173047002141190087169000141
    047002173186087141048002173
IO 1340 DATA 1870871412400832350840490021
    73190087141047002169064141007212169054
    141000208169065141001208141
BY 1350 DATA 2020871691981410022081690681
    3312916907013313316906913313169128133
    128133132133133016901411193
ZK 1360 DATA 0021690001410082081410092081
    41010208169000141005208169001141111002
    169000162000157000068157000
BD 1370 DATA 0691570000701570000712322082
    41169240160000145128145132200192018208
    247160000169224145130200192
PX 1380 DATA 0042082491690021410292081690
    62141047002169003141015210169000141008
    210169120141008210169007162
DS 1390 DATA 1121600000320922281692271331
```

continued on next page



52169087133153169013133154169088133155  
 169055133156169088133157169  
 EU 1400 DATA 0971331581690881331591691391  
 33160169088133161169181133162169088133  
 163169223133164169088133165  
 SD 1410 DATA 1690891331661690891331671732  
 1608714120002056105004141196002141197  
 002105007141198002169154141  
 MP 1420 DATA 1920021411940021692551412520  
 02169236084231085000141213087141214087  
 032036087173211087208014160  
 BX 1430 DATA 0001620000321660861600011620  
 00032166086032031086173218087141200087  
 17322008714119200871732220087  
 FY 1440 DATA 1412060871690011411990871620  
 00032056086173209087208007169000141005  
 21013077174210087048006189  
 PF 1450 DATA 0830891410012101731970872400  
 03032145085173196087240003032209085173  
 211087240212173252002201255  
 UP 1460 DATA 2402052011752080081690011412  
 12087076160087032031086173219087141192  
 087173217087141200087240012  
 HH 1470 DATA 17322008714119200871732180871  
 41200087169001141201087169255141252002  
 056176151169000141197087141  
 HD 1480 DATA 1990871732110872080502382130  
 07162001142212087032067087174213087160  
 000032166086162001032067087  
 FY 1490 DATA 0320310861732170871412000871  
 73219087141192087173221087141206087162  
 001032056086096169000141196  
 SC 1500 DATA 0871690011411990871732110872  
 08062238214087169001141212087232085227  
 086173214087240005162000032  
 OE 1510 DATA 0670871742140871600010321660  
 06173214087240005162000032067087032031  
 086173210807141200087173220  
 IF 1520 DATA 0871411920871732220871412060  
 07162000032056086096173223087141217087  
 173224087141218087173225087  
 FI 1530 DATA 1412190871732260871412200870  
 96169000032013114224001240006169065160  
 000240004169188160002141202  
 CC 1540 DATA 0871410012081730102100410151  
 41201087169251141193087173193087208020  
 169251141193087185192002056  
 ZS 1550 DATA 2330022011422080021691541531  
 92002173000211224001240006041004208220  
 240004041008208214169154153  
 CH 1560 DATA 1920021690001412120871690001  
 33019141205087141204087141193087141194  
 087141195087096140215087224  
 DY 1570 DATA 0101440431380562330101701601  
 07173215087240012152024105004168169004  
 141190087208005169008141190  
 CC 1580 DATA 0871731900871450881520241050  
 2016819220514424214219087138010010024  
 109190087170160228086185087  
 UA 1590 DATA 1081732150872400051520241050  
 04168169000141190087189091089141191087  
 173215087240003078191087173  
 PE 1600 DATA 1910871450881520241050201682  
 3223819008717319087201005144221169014  
 205213087144081205214087144  
 EO 1610 DATA 0760961601071690001450882001  
 45088152024105003168169000145088200145  
 088152024105015168192205144  
 BE 1620 DATA 2280961891960021411900871600  
 02169000141001210169245133020169070157  
 196002165020208252173190087  
 TQ 1630 DATA 1571960021692451330201650202  
 08252136208226096169001141212087173200  
 002141198002141192002141194  
 DM 1640 DATA 0021732520022012552080251730  
 00211041008240009173000211041004240002  
 208233173190087141200002076  
 FI 1650 DATA 2080841690121411970021730470  
 02141190087169000141029208141047002076  
 227080083058155067196087199  
 LP 1660 DATA 0870000000000002010872010870  
 00203087203087000209087211087000255000  
 22708722208000001000001000  
 HA 1670 DATA 0010010010000010010010010010  
 01001001001001001001001002001001001001  
 001002001002001002001002001  
 QW 1680 DATA 0020010030010030010000010000  
 01000001000001001001000001001001001001  
 001001001001001001001002  
 OI 1690 DATA 0010020010020010020010020010  
 03001002001002001003001000001000001000  
 001000001000001001001000001  
 DP 1700 DATA 0010010010010010010010020010010  
 01001001002001001001002001002001002001  
 002001002001002001000001000  
 FW 1710 DATA 0010010010010010010010010010010

01001001001001001001002001001001002001002  
 001001001002001001001002001  
 HX 1720 DATA 0030010020010030010030010000  
 010000010000010000010000010000010001001  
 000001001001001001001001001  
 SC 1730 DATA 0010010010020010020010020010  
 02001002001002001002001002001000001000  
 001000001000001001001001001  
 TC 1740 DATA 0010010010010010010010010020  
 01001001002001002001002001002001002001  
 002001002001002001003001223  
 JY 1750 DATA 0882180890000010000010000010  
 01001000001000001000001001001001001001  
 001001001002001001001001001  
 XJ 1760 DATA 0010010020010020010020010030  
 010030010020010000001001001001001000001  
 001001001001001001001001001  
 GL 1770 DATA 0010010010010010010010010020010  
 02001002001002001002001002001002001002  
 001003001003004006005004003  
 LF 1780 DATA 0020010010020030040050060040  
 030070060050040040030030030030030040  
 004005006007000033035037039  
 DP 1790 DATA 0410430451681361361361680000  
 08000000000168000168128168168000168000  
 168136136168000000168128168  
 UC 1800 DATA 0081681281281681361681680000  
 08000000816813616813616816813616800000  
 11211211206000128002002002  
 KC 1810 DATA 0110110110111391391391391391  
 39139139139139139139110111390110111011  
 011011011002002002002002002  
 ZG 1820 DATA 0020020020020020020020020650  
 000480030030304605204103500000048114  
 101115101110116115098121000  
 UI 1830 DATA 034111098000331211052190892  
 1409010704811410115115000179180161178  
 180000116111000098101103105  
 GH 1840 DATA 110044101021160000511071051  
 08108179165172165163180050105103104116  
 000051107105108108175176180  
 TR 1850 DATA 169175174081080971210000451  
 11100101165179163161176165048114101115  
 115000097110121000107101121  
 UD 1860 DATA 0001161110000991040971101031  
 0100011509911410110111000099111108111  
 114000034097098101000000035  
 OI 1870 DATA 104105108100000521011011100  
 0000033100117108116051101110105111114  
 051112105114105116001003001  
 YB 1880 DATA 0010020020010010040020010050  
 0300100600400100700000039097109101000  
 00004811409709911610509101  
 YF 1890 DATA 2402522542071951951951952072  
 55254252240192192192192192192192192192  
 192024060126231195195195195  
 SF 1900 DATA 1951951951951951951951951951  
 95195231126060024195195195272727272727  
 227243211211219219203203207  
 ME 1910 DATA 1991991991991991951951951950  
 24060126231195192215090232090192192192  
 192192192207207195195195195  
 XG 1920 DATA 1952311260600242550001122511  
 1207213807215207216900032025112173112  
 002032023114133128169240032  
 VH 1930 DATA 02511224001600001451282001  
 92018208249096169000032055112173113002  
 032023114133132169240032055  
 EG 1940 DATA 11224001600001451322001920  
 18208249096173212087240003076106113173  
 192087205193087240003076106  
 SJ 1950 DATA 1131690001411930871690000320  
 13114032036114169000141194087206195087  
 016005169007141195087173195  
 AM 1960 DATA 0870101410650061681851520001  
 33168185153000133169173201087010168173  
 198087240009165130024113168  
 NC 1970 DATA 1331302080071651300562411681  
 33130200173199087240014173202087024113  
 168141202087141001208208012  
 KU 1980 DATA 173208070562411681412020871  
 4100120817320807201020176003238196087  
 201235144003238197087032070  
 DC 1990 DATA 1142381940870322171141731940  
 8720520008714136173202087201059144006  
 201195176064208120201051144  
 JU 2000 DATA 1161651280321431131920012081  
 07169000141193252112247113087173199087  
 073001240095169001141199087  
 MP 2010 DATA 1732080871412170871731920871  
 4121908717321808714120808717322087141  
 192087173222087141206087208  
 TN 2020 DATA 0582012031760541651320321431  
 13192001208045173199087073001208038169  
 000141193087141199087173200  
 TA 2030 DATA 0871412180871731920871412200  
 87173217087141200087173221087141206087



```

DA 173219087141192087169224032
2040 DATA 0131142400002381930872062090
87173210887048003206210087173252002201
175208008169001141212087076
NF 2050 DATA 1600871041681041701040760982
28160000024233003197130176116024105020
197130144109032108114200169
LW 2060 DATA 0081412100871692001410002101
69045141001210173205087201001208036206
205087206192087206220087206
BW 2070 DATA 2190871732200872010012080021
69001141220087173219087201001208002169
001141219087173204087201001
FH 2080 DATA 2080402062040872382000872382
18087238217087173218087205222087144003
248113227114173222087141218
LU 2090 DATA 0871732170872052210871440031
73221087141217087096160000145130200192
004208249096201048176002169
NX 2100 DATA 0482011951440021691940961732
00087205206087176025165019201005144019
169000133019173192087201002

```

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FK 2110 DATA 1440052382050872080032382040
87096165130201048176007169001141198087
208009201208144020169000141
PH 2120 DATA 198087169001410042101690431
41005210169002141209087096162008056229
130201009144043056233010170
PF 2130 DATA 1410650061731980870410012080
12024173201087125059089141201087208010
024173201087253075089141201
LA 2140 DATA 0871690001411980872400351701
73198087073001208012173201087024125051
089141201087208010173201087
PQ 2150 DATA 0562530670891412010871690011
41198087173201087016007169000141201087
208009201021144005169020141
MB 2160 DATA 2010870961732010872010111440
03238194087096000117040117072152072238
232090172232090185234090141
WX 2170 DATA 0102121410182081410192081410
20208141021208141025208208005169255141
232090104168104064224002225
LI 2180 DATA 0020000080

```

keep on computing while you print!

# ANTIC SPOOLER

Article on page 22

## LISTING 1

Don't type the  
TYPO II Codes!

```

IX 10 REM PRINTER SPOOLER
KE 20 REM BY GLENN K. SMITH
GT 30 REM (c) 1985-1988 ANTIC PUBLISHING
EV 40 REM (LINES 10-250 MAY BE USED WITH
    OTHER BASIC LOADERS IN THIS ISSUE.)
IJ 50 REM CHANGE LINE 70 AS NECESSARY.)
PR 60 DIM FN$(20),TEMP$(20),AR$(93):DPL=P
    EEK(10592):POKE 10592,255
CU 70 FN$="D:SPOOLER.OBJ":REM THIS IS THE
    NAME OF THE DISK FILE TO BE CREATED
RD 80 ? "Disk or Cassette?":POKE 764,25
    5
PY 90 IF NOT (PEEK(764)=18 OR PEEK(764)=
    58) THEN 90
TH 100 IF PEEK(764)=18 THEN FN$="C:"
VB 110 POKE 764,255:GRAPHICS 0:? " AN
    TIC'S GENERIC BASIC LOADER"
MY 120 ? "BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :? "Creating ":FN$:? "...Plea
    se stand by."
LW 150 RESTORE :READ LN:LM=LN:DIM A$(LN):
    C=1
BQ 160 AR$="":READ AR$
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
    2,255
DM 180 LM=LM-1:POSITION 10,10:? "(Countdo
    wn...T-":INT(LM/10):? "
BK 190 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
    1:NEXT X:GOTO 160
MM 200 IF PEEK(195)=5 THEN ? :? :? "TOO
    MANY DATA LINES!":? "CANNOT CREATE FIL
    E!":END
CM 210 IF C<LN+1 THEN ? :? "TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
UQ 220 IF FN$="C:" THEN ? :? "Prepare ca
    ssette, press [RETURN]"
AR 230 OPEN #1,0,0,FN$
PU 240 POKE 766,1:? #1:A$:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0:? "DONE!"
HK 1000 DATA 631
OX 1010 DATA 2552551740681690691722320022
    00132205160000132204132206169069133207
    174232002177206201102240012
SL 1020 DATA 2010692400162010702400112010
    71208010130024105033208000423223232138
    145204230204230206208004230
UX 1030 DATA 2052302071652072010712082071
    65206201016208201174232002232232142255
    06807617707000000000000000
GB 1040 DATA 0000000010000000000000001410

```

```

AU 09069142010069173011069013012069240023
    173054069205139069208015173
1050 DATA 0550692051400692080071690001
41008069240233173009069141176070238011
069208003238012069238054069
YL 1060 DATA 2080032380550691730550692011
    02208017173054069201176208010169176162
    070141054069142055069174010
ZF 1070 DATA 0691600011400080690961730080
    6924000620600806907608228173007069016
    003076215069173011069013012
WH 1080 DATA 0692080030760000701740060691
    73176070157192003168238139069208003238
    140069173140069201102208017
KB 1090 DATA 1731390692011762080101691761
    62170069165070070141139069142140069173
    011069208003206012069206011
KT 1100 DATA 0692321420060692240402400141
    92155208056169032157192003232224040208
    248160146076002070162011189
RY 1110 DATA 0000031570200702020162471620
    11189008070157000003202016247232142006
    069032089220162011189020070
QN 1120 DATA 1570000032020162470441600011
    40007069076098228064001087120192003030
    000040000078000000000000000000
BL 1130 DATA 0000000000000000000000001730
    88070174089070133010134011173091070174
    092070133012134013173000069
OD 1140 DATA 1740010691412310021422320021
    73004069174005069141027003142028003172
    002069174003069169007032092
XC 1150 DATA 2280760870702550120001690321
    62070133010134011169176162070141054069
    142055069141139069142140069
YD 1160 DATA 1691761621021412310021422320
    02169161162070141027003142028003160000
    140011069140012069140006069
AL 1170 DATA 2001400070691601051620691690
    0707609222800000000000000000000000
QT 1180 DATA 0000001730270031740280031332
    04134205141004069142005069160000177204
    153161070200192006208246160
MN 1190 DATA 0081772041531610702001920152
    08246165012166013141091070142092070165
    010166011141088070142089070
OS 1200 DATA 1690901620701330121340131732
    31002174232002141000069142001069173036
    002174037002141002069142003
MZ 1210 DATA 069076093070000224002250021
    74068


```



## RECALL

Article on page 33

## LISTING 1

Don't type the  
TYPO II Codes! 

```

DA 10 REM RECALL
GX 20 REM BY BARRY KOLBE
QH 30 REM (c)1988, ANTIC PUBLISHING
TC 40 DEBUG=PEEK(53279)=5
TP 100 GOSUB 1610
XX 110 GOSUB 890:GRAPHICS 2:POKE 756,CHSE
T:POKE 559,46:POKE 752,1:GOSUB 525
BE 120 DL=PEEK(560)+256*PEEK(561)+14
NF 130 POKE DL,PEEK(DL)+128:POKE 513,INT(
ADR(DLI)/256):POKE 512,ADR(DLI)-256*
PEEK(513):POKE 54286,192
KO 140 X=1:Y=0:POSITION X,Y:? #6;" 1 2
3 4 5 6";:Y=Y+2
ZS 150 POSITION X,Y:? #6;" 7 8 9 10 11
12";:Y=Y+2
NL 160 POSITION X,Y:? #6;"13 14 15 16 17
18";:Y=Y+2
ZH 170 POSITION X,Y:? #6;"19 20 21 22 23
24";:Y=Y+2
SJ 180 POSITION X,Y:? #6;"25 26 27 28 29
30";
XL 190 PLAYER=0:IF OPP=1 THEN PLAYER=1:X=
USR(ADR(MOVE$),ADR(PDEF$),PL0,Y):POKE
53248,XP
BW 195 POKE 704,96*PLAYER+30
GK 200 POKE 656,0:POKE 657,1:? "Pick two
numbers CONTROL G to guess";:POKE 656,
1:POKE 657,10
RN 210 ? "Current player ";PLAYER+1:IF XG
=1 THEN GOSUB 575
UV 211 GOSUB 525
UJ 220 POKE 656,2:POKE 657,5:? "SCORE 1:
";SC(1):POKE 657,25:? "2: ";SC(2)
SA 230 IF PEEK(764)=189 THEN 970
DG 240 IF OPP=1 AND PLAYER THEN GOSUB 112
0:XP=TX:YP=TY:GOTO 260
EP 250 GOSUB 430:GOSUB 1060
FU 260 F=((XP-52)/24)+1+((YP-14)/16)*6
OC 270 IF DONE(F)=1 THEN 230
NC 280 CG$(F,F)=MATCH$(F,F)
MN 290 SY=INT((F-1)/6):SX=F-SY*6
VZ 300 POSITION 1+5X*3-3,5Y*2:? #6;" ";MA
TCH$(F,F)
FS 310 IF OPP=1 AND PLAYER THEN GOSUB 135
0:XP=TX:YP=TY:GOTO 330
EK 320 GOSUB 430:GOSUB 1060
IC 330 S=((XP-52)/24)+1+((YP-14)/16)*6
NP 340 SY1=INT((S-1)/6):SX1=S-SY1*6
GK 350 IF F=5 THEN 310
TP 360 IF DONE(S)=1 THEN 310
TB 370 CG$(S,S)=MATCH$(S,S)
BU 380 POSITION 1+5X1*3-3,5Y1*2:? #6;" ";
MATCH$(S,S)
AU 390 IF MATCH$(F,F)=MATCH$(S,S) THEN DO
NE(F)=1:DONE(S)=1:CG$(F,F)=" ":CG$(S,S)
)=" ":GOTO 720
BY 400 GOSUB 1030:PLAYER=PLAYER+1:XG=1:IF
PLAYER=2 THEN PLAYER=0
ZL 410 GOSUB 530:GOSUB 550:GOTO 200
LF 420 REM STICK MOVE
CK 430 X=USR(ADR(MOVE$),ADR(PDEF$),PL0,Y)
:POKE 53248,XP
RK 440 FOR I=1 TO 50:NEXT I
OV 450 IF PEEK(764)=189 THEN GOTO 970
TZ 460 ST=PEEK(632+PLAYER):IF ST=14 THEN
YP=YP-16:IF YP<0 THEN YP=78
UP 470 IF ST=13 THEN YP=YP+16:IF YP>94 T
HEN YP=14
AP 480 IF ST=11 THEN XP=XP-24:IF XP<=44 T
HEN XP=172
KX 490 IF ST=7 THEN XP=XP+24:IF XP>=188 T
HEN XP=52
SU 500 IF PEEK(644+PLAYER)=1 THEN 430
UV 510 GOSUB 525
ZF 520 RETURN
DU 525 POKE 77,0:IF NOT (DEBUG) THEN POK
E 16,112:POKE 53774,112
ZX 526 RETURN
SY 530 M$=STR$(F):IF F<10 THEN M$=" ":M$
(2)=STR$(F)
NZ 540 POSITION 1+5X*3-3,5Y*2:? #6;M$:RE
TURN
HC 550 M$=STR$(S):IF S<10 THEN M$=" ":M$
(2)=STR$(S)
OV 560 POSITION 1+5X1*3-3,5Y1*2:? #6;M$:R
ETURN
BX 570 GOSUB 530:GOTO 200
NS 575 FOR XG=14 TO 0 STEP -1:SOUND 0,50,
14:XG:NEXT XG:POKE 704,96*PLAYER+30:RE
TURN
RG 580 REM
VC 590 REM RESTART
WU 610 GOSUB 1850
DC 620 MATCH$=BL$:CG$=BL$
JK 630 FOR I=1 TO 30:RN(I)=I:NEXT I
KU 640 FOR I=1 TO 30:X=INT(RND(0)*30)+1:B
=RN(I):RN(I)=RN(X):RN(X)=B:NEXT I
CW 650 FOR I=1 TO 15:MATCH$(RN(I),RN(I))=
CHR$(I+162):MATCH$(RN(15+I),RN(15+I))=
CHR$(I+162)
YW 660 IF I>11 THEN MATCH$(RN(I),RN(I))=C
HR$(175+I):MATCH$(RN(15+I),RN(15+I))=C
HR$(I+175)
GK 670 NEXT I
YU 680 FOR I=1 TO 30:DONE(I)=0:NEXT I:XP=
52:YP=14:SC(1)=0:SC(2)=SC(1):RETURN
RJ 690 REM
NF 700 REM WINNING
CI 720 GOSUB 1040:POSITION 1+5X*3-3,5Y*2:
? #6;" ";T$(F,F):POSITION 1+5X1*3-3,5
Y1*2:? #6;" ";T$(S,S);
WZ 730 SC(PLAYER+1)=SC(PLAYER+1)+1
NP 740 IF SC(1)+SC(2)<15 THEN 200
KM 750 POKE 54286,64:FOR I=10 TO 250 STEP
10:POKE 710,I:POKE 712,250-I:SOUND 0,
150+I,10,8
HG 760 FOR J=1 TO 15:NEXT J:SOUND 0,0,0,0
:NEXT I
AR 770 POKE 53248,0:GRAPHICS 0:POKE 752,1
:POSITION 4,4:? "The Winning Player is
";
QK 780 PLAYER=1:IF SC(2)>SC(1) THEN PLAYE
R=2
RB 790 ? PLAYER:POSITION 4,8:? "THE PUZZL
E IS ":POSITION 4,10:? AS
TT 800 POSITION 4,12:? "SCORES 1: ";SC(1)
,2: ";SC(2)
PE 810 POSITION 4,16:? "Press START to pl
ay again"
VE 820 POSITION 4,18:? "Press OPTION to a
uit"
BN 830 IF PEEK(53279)=6 THEN 110
MT 840 IF PEEK(53279)=3 THEN GRAPHICS 0:E
ND
PW 850 GOTO 830
RF 860 REM
NH 870 REM INTRO
EC 890 GRAPHICS 17:POKE 708,30:POKE 709,2
02:POKE 710,152:POKE 711,14:POKE 712,5
0
GA 895 POSITION 4,1:? #6;"RECALL M":OPP
=2
RM 900 GOSUB 610:GOSUB 950
PD 910 POSITION 2,15:? #6;"SOUND to choo
se":POSITION 2,17:? #6;"SOUND to begin
"
IY 920 I=PEEK(53279):IF I=6 THEN RETURN
HK 930 IF I=5 THEN GOSUB 1050:OPP=OPP+1:I
F OPP>2 THEN OPP=1
LL 940 GOSUB 950:GOTO 920
ZA 950 IF OPP=1 THEN POSITION 2,7:? #6;"
TWO PLAYER ":POSITION 2,9:? #6;"> ON
E PLAYER <":RETURN
UM 960 POSITION 2,7:? #6;"> TWO PLAYER <
":POSITION 2,9:? #6;" ONE PLAYER ":RE
TURN
LL 970 REM GUESS
VH 980 POKE 752,0:POKE 764,255:? "GUESS ":POKE
656,1:POKE 657,2:? "GUESS ":POP
UG 990 POKE 656,2:POKE 657,2:INPUT R$:IF
R$=A$ THEN ? "CORRECT":GOTO 1020
PL 1000 PLAYER=PLAYER+1:IF PLAYER=2 THEN
PLAYER=0
WO 1010 POKE 752,1:? "M":GOTO 200
OY 1020 SC(PLAYER+1)=SC(PLAYER+1)+15-SC(
1)+SC(2):GOTO 750

```



```

ID 1030 REM DELAY
UK 1040 FOR I=1 TO 200:NEXT I:GOSUB 525:R
    RETURN
RS 1050 REM SOUND
EP 1060 SOUND 0,200,10,8:FOR I=1 TO 50:NE
    XT I:SOUND 0,0,0,0:RETURN
XK 1070 IF PEEK(764)=255 THEN 1070
CB 1080 POKE 764,255:RETURN
IV 1090 REM DELAY
ZA 1100 FOR I=1 TO 20:NEXT I:RETURN
IB 1110 REM
GH 1120 REM COMPUTER
UV 1140 POKE 1791,0:FOR I=1 TO 29:FOR J=I
    +1 TO 30
MJ 1150 IF CG$(I,I)="" THEN 1180
GD 1160 IF CG$(J,J)=CG$(I,I) THEN CF=I:CS
    =J:POKE 1791,1:GOTO 1190
FX 1170 NEXT J
OK 1180 NEXT I:GOTO 1250
QL 1190 YF=INT((CF-1)/6):XF=CF-YF*6-1:GOT
    O 1270
NH 1200 POKE 1791,0:FOR I=1 TO 30:IF DONE
    (I)=0 THEN CF=I:GOTO 1220
NR 1210 NEXT I:GOTO 1250
YI 1220 FOR J=30 TO I+1 STEP -1:IF DONE(J
    )=0 THEN CS=J:POKE 1791,1:GOTO 1190
FN 1230 NEXT J
IF 1240 REM RANDOM MOVE
DW 1250 XF=INT(RND(0)*6):YF=INT(RND(0)*5)
    :CF=YF*6+XF:IF NOT DONE(CF) AND SC(1)
    +SC(2)<8 THEN 1280
QA 1260 IF DONE(CF) THEN 1200
BO 1270 REM MOVE
CS 1280 TX=52+24*XF:TY=16*YF+14
MB 1290 IF TX=XP THEN 1310
LJ 1300 FOR J=XP TO TX STEP SGN(TX-XP)*24
    :POKE 53248,J:GOSUB 1090:NEXT J
FM 1310 IF YP=TY THEN RETURN
BZ 1320 FOR J=YP TO TY STEP SGN(TY-YP)*16
    :GOSUB 1330:GOSUB 1090:NEXT J:RETURN
AI 1330 X=USR(ADR(MOVE$),ADR(PDEF$),PL0,J
    ):RETURN
IO 1340 REM
GF 1350 REM COMPUTER 2ND MOVE
FB 1370 IF PEEK(1791)=1 THEN CF=CS:GOTO 1
    190
FD 1380 FOR I=1 TO 30
IM 1390 IF I=F THEN 1410
YU 1400 IF CG$(I,I)=MATCH$(F,F) THEN CF=I
    :GOTO 1190
FA 1410 NEXT I
QN 1420 GOTO 1250
MU 1430 DATA 4,28,52,116,12,255,126,60
RI 1440 DATA 0,0,120,100,255,255,102,0
DO 1450 DATA 0,126,16,158,249,31,0,0
UU 1460 DATA 24,60,126,255,153,153,255,0
FL 1470 DATA 24,60,126,255,255,24,24,24
FH 1480 DATA 16,56,40,56,56,56,124,186
HB 1490 DATA 66,36,24,126,66,66,66,126
BK 1500 DATA 0,54,127,127,62,28,0,0
ZG 1510 DATA 0,24,60,126,126,60,24,0
BN 1520 DATA 8,12,79,159,188,248,124,0
WU 1530 DATA 126,66,66,126,126,126,126,0
QX 1540 DATA 0,0,1,10,28,40,64,0
KR 1550 DATA 56,108,124,56,48,56,48,0
CG 1560 DATA 60,60,24,60,102,66,102,60
NV 1570 DATA 0,60,36,255,255,255,255,255
JE 1580 REM
BD 1590 REM INIT
DT 1610 GRAPHICS 18:POSITION 7,2:? #6;"RE
    GAIN":POSITION 3,4:? #6;"by barry kolb
    e"
UX 1620 POSITION 5,6:? #6;"PLEASE WAIT":G
    OSUB 525
DX 1630 DIM BL$(30),M$(2),SC(2),A$(30),R$
    (30),T$(30),MATCH$(30),RN(30),CG$(30),
    CMOV$(35),MOVE$(60),PDEF$(12)
BU 1640 DIM DONE(30),DLIS(20)
UQ 1650 DLIS="HXXXXXXXXXXXXXXXXXhe"
ZS 1670 BL$=""
    :POKE 752,1:SC(1)=0:SC(2)=0
IJ 1680 CMOV$="XXXXXXXXXXXXXXXXXXXXXXXXXXXX
    XXXXXXX"
JK 1710 POKE 752,1:PMBASE=PEEK(106)-16:PL
    0=PMBASE*256+512
UQ 1720 PDEF$="XXXXXXXXXXXXXXXX"
UD 1740 POKE 623,1:POKE 54279,PMBASE:POKE
    53277,3:POKE 559,46:POKE 704,78:POKE
    53256,3
UU 1750 XP=52:YP=14:POKE 705,148:POKE 706
    ,148
PH 1760 MOVE$="XXXXXXXXXXXXXXXXXXXXXXXXXXXX
    XXXXXXXXXXXXXXXXXXXXXXX"
KG 1790 CHSET=PEEK(106)-20:MYCH=CHSET*256
    :RESTORE 1430
XA 1800 X=USR(ADR(CMOV$),MYCH)
QT 1810 FOR I=3 TO 13:FOR J=0 TO 7:READ B

```

```

OO 1820 POKE MYCH+I*8+J,B:NEXT J:NEXT I
YY 1830 FOR I=27 TO 30:FOR J=0 TO 7:READ
    B
BN 1840 POKE MYCH+I*8+J,B:NEXT J:NEXT I:P
    OKE 756,CHSET:RETURN
RP 1850 I=INT(RND(0)*10):RESTORE 1900+I*1
    0
ZL 1860 READ A$:T$=BL$(1,30):A=LEN(A$)-1:
    X=INT((30-A)/2):X=X+(X=0):T$(X,X+A)=A$

OT 1870 FOR I=X TO X+A:T=ASC(T$(I,I)):T=T
    +160:IF T=192 THEN 1890
UI 1880 T$(I,I)=CHR$(T)
TR 1890 NEXT I:XP=52:YP=14:RETURN
VW 1900 DATA A STITCH IN TIME SAVES NINE
LP 1910 DATA THE MERCHANT OF VENICE
QV 1920 DATA ROSES ARE RED VIOLETS ARE BL
    UE
QW 1930 DATA CHARGE OF THE LIGHT BRIGADE
BU 1940 DATA THE HOUND OF THE BASKERVILLE
    S
WL 1950 DATA ANTIC THE ATARI RESOURCE
TX 1960 DATA HE WHO LAUGHS LAST LAUGHS BE
    ST
MD 1970 DATA THE WALRUS AND THE CARPENTER

ON 1980 DATA DECLARATION OF INDEPENDENCE
NY 1990 DATA ALEXANDER THE GREAT

```

## LISTING 2

```

SF 10 REM RECALL, LISTING 2
GX 20 REM BY BARRY KOLBE
GD 30 REM (c) 1985,1988 ANTIC PUBLISHING
IK 35 REM (CREATES LINES 1650, 1680, 1720
    AND 1760 FOR RECALL.BAS)
EU 40 REM (LINES 10-250 MAY BE USED WITH
    OTHER BASIC LOADERS IN THIS ISSUE.
IJ 50 REM CHANGE LINE 70 AS NECESSARY.)
PR 60 DIM FN$(20),TEMP$(20),AR$(93):DPL=P
    EEK(10592):POKE 10592,255
WO 70 FN$="D:LINES.LST":REM THIS IS THE N
    AME OF THE DISK FILE TO BE CREATED
RD 80 ? "Disk or Cassette?":POKE 764,25
    5
PY 90 IF NOT (PEEK(764)=18 OR PEEK(764)=
    58) THEN 90
TH 100 IF PEEK(764)=18 THEN FN$="C:"
VB 110 POKE 764,255:GRAPHICS 0:? " AN
    TIC'S GENERIC BASIC LOADER"
MY 120 ? "BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :? "Creating ",FN$:? "...plea
    se stand by."
LW 150 RESTORE :READ LN:LN=LN:DIM A$(LN):
    C=1
BQ 160 AR$="":READ AR$
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
    2,255
DM 180 LN=LN-1:POSITION 10,10:? "(Countdo
    wn...T-":INT(LN/10);")
BK 190 A$(C,C)=CHR$(VAL(AR$(X,X+2))) :C=C+
    1:NEXT X:GOTO 160
MM 200 IF PEEK(195)=5 THEN ? :? :? "TOO
    MANY DATA LINES!":? "CANNOT CREATE FI
    LE!":END
CM 210 IF C<LN+1 THEN ? :? "TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
UQ 220 IF FN$="C:" THEN ? :? "Prepare ca
    ssette, press [RETURN]"
AR 230 OPEN #1,0,0,FN$
PU 240 POKE 766,1:? #1,A$:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0:? "COMPLETED"
    "
JE 1000 DATA 166
HS 1010 DATA 0490540530480320680760730360
    6103407216900014101021214102408169010
    141023208104064034155049054
BE 1020 DATA 0560480320670770790860360610
    34104104133204104169224133206169000133
    205133203162003160000177205
HM 1030 DATA 1452032002082492302042302062
    0201624009603415504905500480320800068
    069070036061034254254130130
AN 1040 DATA 1301301301301301302542540341
    55049055054048032077079086069036061034
    104104133204104133203104133
UJ 1050 DATA 2061041332052341041041332121
    69000168145205136208251160000132213164
    213177203164212145205230212
VF 1060 DATA 2302131652132010122082380960
    34155

```



# Crazy Chicken Barrage

Article on page 51

**A**

```

-----
BARRAGE
By Stephen Evermann & Paul Pratt
(c)1988, Antic Publishing Inc.

If Xbios(4)<>0 !CHECK RESOLUTION
Alert 1," B A R R A G E "; !REQUIRES LOW RESOLUTION",1,"SORRY",B
End
Endif

Scr_mem=Lpeek(1102) !Get address of screen memory
Dim Obj$(9),Eggs(6),Eggs(10),Eggofs(10),Eggofs(10)
Dim Speed(10),Pal(15)
@Fix_colors(True)
Graphmode 1
@In_hi_score
@Assign_objects
For Numegg=0 To 9
    @New_egg(Numegg)
Next Numegg
@Talk_screen
Boyx=112
Boyx=166
Play=True
! Key=&HFFC02 pause removed
@Do_color
@Talk
Level=0
Numegg=0
Total_eggs=0
Eggs_avail=15
Lives=3
Extra=0
! Score=0
Bonus_level=1
While Play=True
    ! Score=Temp_score
    @Screen
    Dance=False
    Play=True
    Dead=False
    Hidem
    @Score
    @Main
    If Score>Hi_score
        Hi_score=Score
    Endif
    @Talk
Wend
If Score>Hi_score
    Hi_score=Score
Endif

```

**B**

```

-----
Endif
Setcolor 0,7,7,7
Open "R",#3,"HI_SCORE.EGG"
Write #3,Hi_score
Close #3
@Fix_colors(False)
Showm
End
!
-----
Procedure Main
    @New_egg(1)
    While Play=True
        Mouse Mx,My,Btn
        @Walk
        If Btn<>0
            Play=False
            @Egg_clear
            @Heals
        Endif
        @Egg_drop
        If Dance=True
            Dance=False
        Endif
        @Heals
    Endif
    If Steady>4
        Steady=0
        Put Boyx,Boyy,Obj$(1),3
        Vsync
        Wave 0,0,0,0
        Dead=False
    Endif
    Inc Steady
Wend
Return
!
-----
Procedure Walk
    If Mx<305 And Mx>Boyx
        If Mx>Boyx
            Obj=3
        Else
            Obj=2
        Endif
        Put Boyx,Boyy,Obj$(0),3
        Put Mx,Boyy,Obj$(Obj),3
        Vsync
        Boyx=Mx
        Wave 8,5,7,3
    Else
        Pause 1 !Smooth movement so eggs drop at constant speed
    Endif
Return

```



```

C
-----
Procedure Heals
  Setcolor 0,2
  For Y=0 To Level+6 Step 2
    Put Boyx,Boyy-Y,Obj$(0),3
    Put Boyx,Boyy-Y-2,Obj$(2)
  Pause 3
  Put Boyx,Boyy-Y-2,Obj$(1),3
  Print At(2,6):Chr$(7)
  Pause 5
Next Y
Put Boyx,Boyy-Y-2,Obj$(0),3
Put Boyx,Boyy,Obj$(1),3
Print At((Boyx/8)-1,18):"
Pause 10
Setcolor 0,16
Return

===== EGG ROUTINES =====
Procedure Egg_drop
  Numegg=0 !Start with egg #0
Repeat
  Put Eggx(Numegg),Eggy(Numegg),No_eggs,3 !Put blank space where egg was
  Add Eggx(Numegg),Speed(Numegg) !Move position of egg down
  Put Eggx(Numegg)+Egg_ofs(Numegg),Eggy(Numegg),Eggtype$(Numegg),7 !draw egg
  Vsync
  Add Eggx(Numegg),Egg_ofs(Numegg) !If horizontal motion add that
  If Eggx(Numegg)>158 And Boyx<10<Eggx(Numegg) And Boyx+12>Eggx(Numegg)
    ! check if boy is under egg. if so catch egg
    If Eggtype$(Numegg)<>Eggs(4)
      Put Eggx(Numegg),Eggy(Numegg),No_eggs,3 !Egg caught
      @New_egg(Numegg)
      Add Score,49 !Level+1)*9.6
      @Difficulty
    Else ! If boy caught a knife, kill him
      @Stabbed
    Endif
  Endif
Endif

If Eggx(Numegg)>187-Speed(Numegg) !Egg splat
  If Eggtype$(Numegg)<>Eggs(3)
    Put Eggx(Numegg),Eggy(Numegg),No_eggs,3
    If Eggtype$(Numegg)=Eggs(1)
      Put Eggx(Numegg),189,Eggs(2),3
    Else
      Put Eggx(Numegg),189,Eggs(4),3
    Endif
    @New_egg(Numegg)
    @Difficulty
  Else
    @Explode ! If grenade was dropped, kill boy
  Endif
Exit If Dead
Exit If Dance
Inc Numegg
Until Numegg>Total_eggs
Return

Procedure Difficulty
Dec Eggs_available
Text 250,16,Int(Score)
If Eggs_available<1
  Eggs_available=15+Level
Inc Total_eggs
@New_egg(Total_eggs)
If Total_eggs>3
  @Egg_clear
  Dance=True
  Total_eggs=0
  Temp_score=Score
  Inc Level
  !Change score
  !Have enough eggs fallen? If so add another
  !More eggs fall each level
  !Make more eggs fall at once
  !If finished dropping 3 eggs at once inc level
  @Egg_clear
  Dance=True
  Total_eggs=0
  Temp_score=Score
  Inc Level
  !If game not over because lives left
  !If not first level
  Dec Level
Endif
Endif
Exit If Dance
Exit If Dead
Exit If Dance
Inc Numegg
Until Numegg>Total_eggs
Return

=====
Procedure New_screen
Cls
Sput Playfield$
@Score
Text 250,16,Int(Score)
X=2
While X>Lives
  Put (X+1)*14,6,No_token$,3
  Dec X
Wend
Return

```

```

D
Print At(Mx/8-1,18):"(Bravo)"
If Int(Score/12000)>=Bonus_level And Lives<3
  Inc Bonus_level
  !If need life and have 12000 points since...
  !last extra life, give new life
  @Heals
  @New_screen
  Print At(Mx/8-1,18):"(EXTRA)"
  @Heals
  Print At(Mx/8-1,18):"(LIFE!)"
Endif
If Level>13
  Level=0
  Add Extra,13 !Tells user round 1 is 14,after finished all 13 levels
  Add Exspeed,2
  @New_screen
Endif
Endif
@Score
Endif
Return

Procedure Stabbed
  Put Boyx,Boyy,Obj$(Obj),3
  Put Eggx(Numegg),Eggy(Numegg),Eggs(4),7
  For X=4 Downto 0
    Sound 1,15,1,X,20-X
  Next X
  Pause 32
  Sound 1,0,0,0
  @Kill_man
  Return

Procedure Explode
  For X=0 To 8
    Setcolor 0,5+Random(3),Random(5),0
    Sound 1,15,14,X,12-X
  Next X
  Pause 26
  Sound 1,0,0,0
  Print At(2,2):Chr$(7)
  Setcolor 0,16
  @Kill_man
  Return

Procedure Kill_man
  Dec Lives
  @Egg_clear
  If Lives>0
    If Level>0
      Dec Level
    Endif
    Total_eggs=0
    Eggs_available=15
    Score=Temp_score
    Dead=True
    @New_screen
  Else
    Play=False
    !Game over
  Endif
Return

=====
Procedure New_screen
Cls
Sput Playfield$
@Score
Text 250,16,Int(Score)
X=2
While X>Lives
  Put (X+1)*14,6,No_token$,3
  Dec X
Wend
Return

```

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E

F

```

-----
Procedure Score
  Graphmode 1
  Deftext 12,0,0,8
  Text 109,16,Total_eggs+1
  Text 174,16,Level+1+Extra
  Return
-----
Procedure Egg_clear
  For Num=0 To Total_eggs+1
    Put Eggx(Num),Eggy(Num),No_eggs,.3
    @New_egg(Num)
  Next Num
  Return
-----
Procedure New_egg(Egg)
  ! This routine sets up the properties a new egg, grenade, or knife will have...
  ! until it hits the ground or is caught. These properties stored in arrays
  Eggx(Egg)=24
  !Always set to top of screen
  Eggx(Egg)=Random(10)*16+80
  !Set Random X start position
  Egg_ofs(Egg)=0
  !Begin egg with no horiz. movement
  Q=Random(10)+1
  !Used to change settings
  Eggtypes(Egg)=Eggs(1)
  !Make object egg then change at lev
  ! routines, if needed.
  Speed(Egg)=6
  !Set this egg to descend 6 pixels at a time.
  On Level Gosub Lev1,Lev2,Lev3,Lev4,Lev5,Lev6,Lev7,Lev8,Lev9,Lev10,Lev11,Lev12,
  Lev13
  If Extra>12
    @Knife
  @Grenade
  Add Speed(Egg).Exspeed
  Endif
  Return
-----
Procedure Lev1
  @Grenade
  Return
-----
Procedure Lev2
  @Angle
  Return
-----
Procedure Lev3
  @Grenade
  @Angle
  Return
-----
Procedure Lev4
  Speed(Numegg)=Random(8)+3
  Return
-----
Procedure Lev5
  @Grenade
  Speed(Numegg)=Random(8)+3
  Return
-----
Procedure Lev6
  Eggx(Numegg)=(Random(3)+8)*16
  Speed(Numegg)=Random(8)+3
  @Angle
  @Grenade
  Return
-----
Procedure Lev7
  @Grenade
  @Knife
  Return
-----
Procedure Lev8
  @Angle
  @Knife
  Return
-----
-----
Procedure Lev9
  @Grenade
  @Knife
  @Angle
  Return
-----
Procedure Lev10
  Speed(Numegg)=Random(8)+3
  @Knife
  Return
-----
Procedure Lev11
  @Grenade
  Speed(Numegg)=Random(8)+3
  @Knife
  Return
-----
Procedure Lev12
  Eggx(Numegg)=(Random(3)+8)*16
  Speed(Numegg)=Random(8)+3
  @Angle
  @Grenade
  @Knife
  Return
-----
Procedure Lev13
  Eggtypes(Numegg)=Eggs(3)
  @Knife
  Return
-----
Procedure Knife
  If Q=5
    Eggtypes(Egg)=Eggs(4)
    !Object is a knife
  Endif
  Return
-----
Procedure Grenade
  If Q=3 Or Q=7
    Eggtypes(Egg)=Eggs(3)
    !Object is a grenade
  Endif
  Return
-----
Procedure Angle
  If Q<6
    !Egg offsets
    Egg_ofs(Egg)=Rnd*2.8
    !Egg moves right
  Else
    Egg_ofs(Egg)=-(Rnd*2.8)
    !Egg moves left
  Endif
  Return
-----
===== HOUSEKEEPING ROUTINES =====
-----
Procedure Screen
  Cls
  Graphmode 2
  Define 1,3,0,0
  Color 5
  Line 0,198,320,198
  Define 1,4,0,0
  Color 4
  Box 0,3,320,21
  X=1
  Repeat
    Put X*14,6,Tokens,.3
    Inc X
  Until X>3
  Deftext 3,0,0,7
  Text 60,16,"ROUND LEVEL SCORE"
  Sget Playfields$
  @Score
  Return
-----
Procedure Fix_colors(State)
  ! Saves & restores your desktop colors.
  For X=0 To 15
```



```

If State=True
  Pal(X)=Xbios(7,X,-1) And &HFFF
Else
  Setcolor X,Pal(X)
Endif
Next X
Return

Procedure Talk_screen
  Create the opening dialog screen
  Graphmode 2
  For X=2 To 7
    Deftext X,16,0.66
    Text 28+X,34-X,"B A R R A G E"
  Next X
  Define 1,3,4,4
  Color 3
  Line 10,43,280,43
  Color 4
  Line 10,40,280,40
  Deftext 5,0,0.4
  Text 34,196,"PRATT & EVERMANN" (c)1988 ANTIC PUBLISHING"
  Deffill 3,1,1
  Pbox 76,91,200,138
  Deffill 4,1,1
  Pbox 80,87,204,134
  Pbox 8,162,138,188
  Pbox 148,162,278,188
  Deftext 7,0,0.6
  Text 98,96,"HIGH SCORE"
  Text 98,118,"YOUR SCORE"
  Deffill 3,1,1
  Pbox 10,160,140,186
  Pbox 150,160,280,186
  Deftext 7,16,0,11
  Text 18,178,"P L A Y"
  Text 158,178,"E X I T"
  Sget Talk$
  Cls
  Return

Procedure Talk
  Create the opening dialog window
  While Btn<>0
    Mouse Mx,My,Btn
  Wend
  Graphmode 2
  Defmouse 5
  Play=True
  Boyy=56
  Setcolor 0,2
  Deftext 1,0,0.7
  Setcolor 0,2
  Sput Talk$
  Text 139-(Len(Str$(Int(Hi_score))))*5,108,Int(Hi_score)
  Text 139-(Len(Str$(Int(Score))))*5,130,Int(Score)
  While Btn=0 Or My<159
    Mouse Mx,My,Btn
    @Wiggle
    Print At(2,12):Mx,My
  Wend
  If Mx>143
    Play=False
  Endif
  Cls
  While Boyy<164
    Boy falls to bottom of screen
    Put Boyx,Boyy,Obj$(0),3
    Add Boyy,4
    Put Boyx,Boyy,Obj$(1),3
    Pause 2
  Wend
  Boyy=166
  Print At(2,2):Chr$(7)

```

```

Setcolor 0,16
Return

Procedure Wiggle
  Put W,Boyy,Obj$(0),3
  Showm
  W=Random(4)+130
  Put W,Boyy,Obj$(2),3
  Showm
  Pause Random(8)+4
  Put W,Boyy,Obj$(3),3
  Showm
  Pause Random(8)+4
  Return

Procedure In_hi_score
  Save the high score to a file. Create a file if needed
  On Error Goto Err
  Reopen:
  Open "R",#3,"HI_SCORE.EGG"
  Input #3,Hi_score
  Print Chr$(7)
  Close #3
  Return
  Err:
  If no file, create new file with "0" as hi score
  Write #3,0
  Close #3
  Resume Reopen
  Return

Procedure Assign_objects
  This procedure physically pokes the objects into screen memory
  then uses the GET command to put them into an array.
  Get 0,0,15,30,Obj$(0)
  Get 0,0,15,7,No_eggs$
  Get 5,2,11,12,No_tokens$
  For X=0 To 15
    Setcolor X,16 !BLACKOUT SCREEN SO SCREEN POKING IS HIDDEN
  Next X
  Restore Obj_data
  For Boys=1 To 3
    For X=0 To 30
      Read Plane1,Plane2,Plane3,Plane4
      poke object into screen memory
      Dpoke Scr_mem+X*160,Plane1
      Dpoke Scr_mem+X*160+2,Plane2
      Dpoke Scr_mem+X*160+4,Plane3
      Dpoke Scr_mem+X*160+6,Plane4
    Next X
    put object into array
    Get 0,0,16,30,Obj$(Boys)
  Next Boys
  Get 5,2,11,12,Tokens$
  Restore Egg
  Q=1
  Repeat
    X=0
  Until X=8
  Get 0,0,16,7,Egg$(Q)
  Inc Q
  Until Q=5
  Cls
  Return

```

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```

Procedure Do_color      !SET SCREEN COLORS
Restore Kolor_data
For X=0 To 15
  Read Kol
  Setcolor X,Kol
Next X
Return

```

```

Kolor_data:
Data 16,1792,1284,1312,7,116,5,1365,546,102,68,1859,1911,1360,1586,1840

```

```
Obj_data:
```

```

Rem  stand boy
Data 8192,8192,0,8192
Data 12290,12290,0,12290
Data 12294,12294,0,12294
Data 12294,6,12288,6
Data 29670,992,28678,28672
Data 30263,2032,29127,455
Data 29847,1712,29543,29344
Data 30711,2032,28679,996
Data 30711,1904,28679,6007
Data 31183,992,31279,13280
Data 14350,2032,14798,2046
Data 14798,1584,14798,4080
Data 6604,1584,6604,5808
Data 7148,1584,7148,1724
Data 6152,2032,6152,6128
Data 2920,1168,2056,2040
Data 2920,1168,2056,4080
Data 2056,2032,2056,2040
Data 2056,2032,2056,4080
Data 0,4088,0,4088
Data 0,4088,0,4088
Data 0,3960,0,3960
Data 0,3960,0,3960
Data 0,3960,0,3960
Data 0,3960,0,3960
Data 0,3960,0,3960
Data 3960,0,0,3960
Data 3960,0,0,3960
Data 1584,1584,0,1584
Data 1584,1584,0,1584
Rem * 1 by 32 words
Rem  leftboy
Data 0,0,0,0
Data 16384,16384,0,16384
Data 24576,24576,0,24576
Data 24580,24580,0,24580
Data 24588,12,24576,12
Data 59340,1996,57344,57356
Data 60524,4064,58252,896
Data 59694,3424,59086,58702
Data 61422,4064,57358,1984
Data 61422,3808,57358,12008
Data 62366,1984,62558,26560
Data 28700,4064,29596,4092
Data 29596,3168,29596,8160
Data 13208,3168,13208,11616
Data 14296,3168,14296,3448
Data 12304,4064,12304,12256
Data 5840,2336,4112,4080
Data 5840,2336,4112,8160
Data 4112,4064,4112,4080
Data 4112,4064,4112,8160
Data 16,8160,16,8176
Data 0,16368,0,16368
Data 0,16120,0,16120
Data 0,15480,0,15480
Data 0,14396,0,14396
Data 0,14396,0,14396
Data 0,14366,0,14366

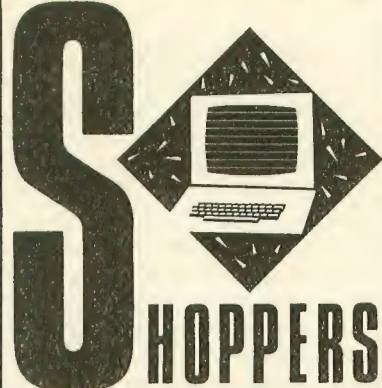
```

```


Data 14350,0,0,14350
Data 14350,0,0,14350
Data 12294,12294,0,12294
Data 12294,12294,0,12294
Rem * 1 by 32 words
Rem  rightboy
Data 0,0,0,0
Data 2,2,0,2
Data 6,6,0,6
Data 8198,8198,0,8198
Data 12294,12288,6,12288
Data 13287,13280,7,12295
Data 13879,2032,12743,448
Data 29847,1712,29543,29351
Data 30711,2032,28679,992
Data 30711,1904,28679,6004
Data 31183,992,31279,998
Data 14350,2032,14798,16368
Data 14798,1584,14798,2040
Data 6604,1584,6604,1716
Data 7148,1584,7148,7856
Data 2060,2032,2060,2036
Data 2920,1168,2056,4080
Data 2920,1168,2056,2040
Data 2056,2032,2056,4080
Data 2056,2032,2056,2040
Data 2048,2040,2048,4088
Data 0,4092,0,4092
Data 0,8060,0,8060
Data 0,7740,0,7740
Data 0,15388,0,15388
Data 0,15388,0,15388
Data 0,30748,0,30748
Data 28700,0,0,28700
Data 28700,0,0,28700
Data 24588,24588,0,24588
Data 24588,24588,0,24588
Egg:
Data 0,0,0,0
Data 128,256,0,384
Data 448,512,0,960
Data 256,512,192,980
Data 0,512,448,960
Data 0,512,448,960
Data 320,512,128,960
Data 128,256,0,384
Rem  splategg
Data 0,0,0,0
Data 0,0,0,0
Data 0,0,0,0
Data 0,0,0,0
Data 1792,1792,1792,1792
Data 4064,4064,16352,16352
Data 6072,6072,65532,65532
Data 28,28,31,31
Rem  grenade
Data 896,0,896,896
Data 1280,0,1280,1280
Data 896,128,512,512
Data 1984,1600,0,0
Data 1984,1152,0,0
Data 1984,1024,0,0
Data 1984,1344,0,0
Data 896,640,0,0
Rem  knife
Data 896,896,896,896
Data 768,768,768,768
Data 4032,4032,4032,4032
Data 768,128,0,896
Data 256,640,0,896
Data 256,512,0,768
Data 256,512,0,768
Data 256,0,0,256

```





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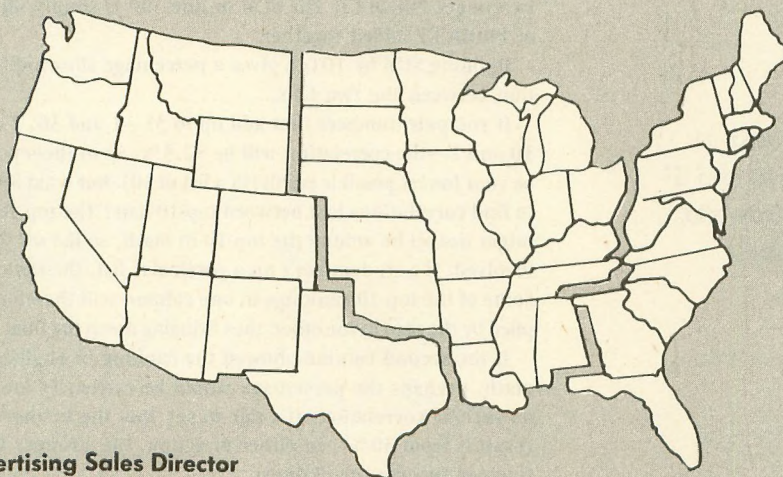
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# Tech Tips

## HIGHSCORE

In the November/December 1987 issue of Page 6, Ian Finlayson published this routine that uses the forced-read mode to update high scores in computer games:

```
31210 TT7=0
31220 HIGHSCORE=TT7:RETURN
31230 IF HIGHSCORE<=T77 THEN RETURN
31240 GRAPHICS 0:?:?:? "31210 TT7="; HIGHSCORE
31250 ??:? "CONT"
31260 POSITION2,0:POKE 842,13:STOP
31270 POKE 842,12:SAVE "D:GAME":RETURN
```

*Antic pays \$25 for every original and exclusive Tech Tip submission that we publish. Send your 8-bit or ST disk and printout to: Antic Tech Tips, 544 Second Street, San Francisco, CA 94107. Tech Tips welcomes very short programs that demonstrate the Atari's powers, simple hardware modifications, or useful macros for popular software.*

## APPEND

Let's say you've written your own mailing list program and want to be able to append data to a file called LETTERS.DAT. Charles Jackson, **Antic** Technical and Online editor, suggests that beginners try the following subroutine:

```
10000 TRAP 11000:CLOSE #1:OPEN
#1,4,0,"D:LETTERS.DAT":GOTO 11010
11000 CLOSE #1:OPEN #1,8,0,"D:LETTERS.DAT"
11010 CLOSE #1:OPEN #1,9,0,"D:LETTERS.DAT"
12000 TRAP 40000:RETURN
```

Line 10000 first sets a trap, then tries to open LETTERS.DAT. If no LETTERS.DAT exists on the disk, instead of generating an error, the computer goes to the line at which the trap was set: 11000, which creates the file. If LETTERS.DAT *does* exist, the subroutine goes to line 11010, which OPENS the file and appends the data.

The TRAP 40000 in line 12000 turns off the trap.

## CORRELATIONS

If you're a teacher, perhaps you want to find a way to express the similarity (or lack thereof) between your students' scores in two different subjects—say, science and math. Once you've *ranked* those scores, this little program by Gregg Pearlman, *Antic* Assistant Editor, can show how *similar* the two lists of *rankings* are. Just be careful *where* you input what.

```
10 Y=0:TOTAL=0:SUM=0
20 ?"NUMBER OF STUDENTS: ";INPUT STUDENTS
30 FOR X=1 TO STUDENTS
40 Y=X*X
50 TOTAL=TOTAL+Y
60 NEXT X
70 FOR PLACES=1 TO STUDENTS
80 ?"RANKING FOR #";PLACES;" ";:INPUT P1,P2
90 PRODUCT=P1*P2
100 SUM=SUM+PRODUCT
110 NEXT PLACES
120 PCT=SUM/TOTAL
130 ? "CORRELATION: ";PCT
```

After you type the number of students (say, 30), lines 30 through 60 *square* each number from 1 to 30 and add them up (9,455) to get TOTAL.

Lines 70 and 110 prevent you from entering data for more than those 30 students. Line 80 asks you to type the *rankings* for the each student's science and math scores, and line 90 multiplies the two to get PRODUCT. The SUM in line 100 is simply all the values of PRODUCT added together.

Dividing SUM by TOTAL gives a percentage showing the correlation between the two lists.

If you pair numbers that add up to 31—1 and 30, 2 and 29. . . 30 and 1—the correlation will be 52.5%, so in theory, that would be your lowest possible result (in a list of 30). But what if you wanted to find correlations just between top-10 lists? The top 10 in science might *not* all be among the top 10 in math, so list *all* the students involved. If a student isn't on a particular list, the ranking is *zero*. Some of the top-10 rankings in one column will therefore be multiplied by the zero in the other, thus bringing down the final percentage.

If the second column showed the ranking in English instead of math, perhaps the percentage would be extremely low—showing an *inverse* correlation. It's fair to say that the further away your result is from 50%—in either direction, the stronger the correlation (or *inverse* correlation).

You can use more than two lists, if you want—say, if you decided to see how strong the relationship involving science, math and music. Make these changes:

```
40 Y=X*X*X
80 INPUT P1,P2,P3
90 PRODUCT=P1*P2*P3
```





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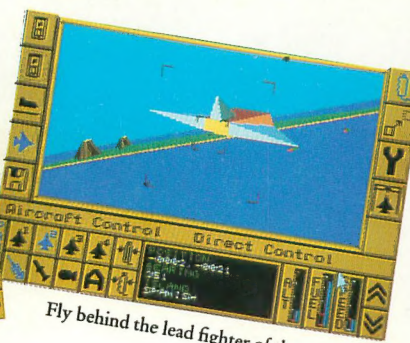
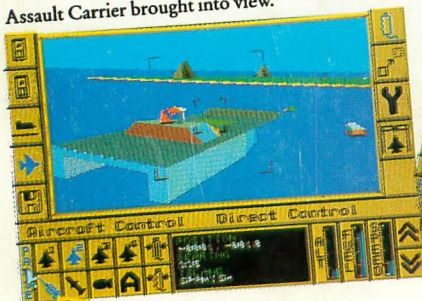


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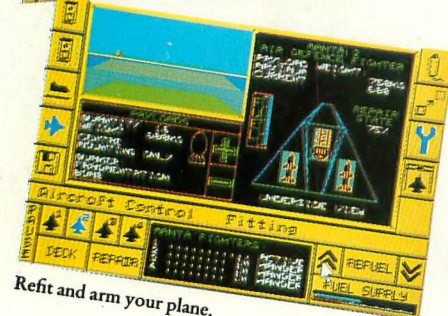
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